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For the Photographer and Kinematographer

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Why I Am a Pictorial Photographer

(Number Seventeen)

FRED R. ARCHER

EVER since I was a small lad, I have been associated with photography in one branch or another, and, in looking back, it seems always to have been an integral part of my life. My father was a photographer, and I early learned the theories and practices of the profession. When, in later years, I started on a career as a commercial artist, I sought a medium of relaxation and found it in my old friend photography; I sought a means of expression and found it in pictorialism.

Problem—When one takes up photography seriously, one becomes or should become a photographer. When one takes up pictorialism, one becomes or should become a pictorialist.

Result—Pictorial Photographer.

Now there are thousands and thousands of people who take up photography in some form or other, but they do not all become photographers. Most of these remain content with snapshooting their friends and letting the photo-finisher do the rest; they do not learn the mechanics of photography.

There are a great many more who do their own photo-finishing and have a real interest in the work. They are mechanics. These become photographers. Not of a necessity do they earn their living by photography, but by understanding and using the mechanics of photography they become photographers.

Out of this latter class there are a few, and I use this word in comparison, who feel an urge to make their photographs pictures. This group become pictorialists. This urge is an integral part of their make-up and asserts itself in a search for a means of expression. It comes only to people who have a certain sense of inborn artisticness. Therefore, I believe that all pictorial photographers are persons endowed with an artistic sense who, as a means of expression, take up photography. I believe that the camera, lens, and other allied components of photography are only tools and that all else lies within the worker.

My first camera was a small Brownie box Kodak. This was later supplanted by a larger camera, which in turn gave way to a still larger one. Subsequently I obtained an even larger camera, until I found myself weighted down with an 8 x 10 View Camera.

This was in the days when I sought the elusive landscape. With all the mountains in California to climb, I rapidly wore out my love for a large camera and began the downward trend, in sizes of cameras, until I finally reached the size of 3½ x 4¼. This size I adopted as my favorite, and it is the size I use for all my pictorial work. I use two cameras, one of the view type and the other a reflex.

Pictorial photography has given me a means of real relaxation from the busy grind of the studio. I find a real enjoyment in planning pictures and then making them. To this end, I usually make a pencil-sketch of the idea as it comes to me and later, when I have the time, I make the picture.

I double expose and double print and combine negatives, sometimes using three or more in making one picture, as I have found that, to the photographer, Nature is, indeed, cruel.

Usually I build miniature settings and double print the figures into them, and, while most of the salon-reviewers refer to these pictures as motion-picture settings, I have the pleasure of building these settings. While this work falls

under another name, it is all a part of my photographic hobby and I enjoy doing it. So, perhaps, I can say that I am a pictorial photographer because I like photography as a means of expression. The creation of a beautiful picture is to me play, and I feel that play is what keeps one young; and—stage whisper—I like to play, and I do want to stay young.

If in the creation of a picture and in the pleasing of myself I am fortunate enough to make one that pleases others, then am I doubly pleased and fully rewarded for all the effort.

Photographing the Spirit of the Mountains

THEODORE M. WURTS

IN the January, 1929 number of PHOTO-ERA MAGAZINE, Mr. C. E. Palmer raised the question as to why mountain-tops do not figure more frequently as pictorial subjects. The whole tone of Mr. Palmer's article was that of a challenge to pictorialists rather than a mere questioning of the lack of the use of summits as subjects in the pictorial field.

Here is a challenge which, we venture to assert, will not immediately be taken up by many. Even those, who, from their own observations, or from Mr. Palmer's inspiriting suggestions, have been convinced of the variety of subject-matter to be found in the field of mountain-photography, will, in many cases, hesitate to take their chances on such an untried subject. However, for those who wish to accept Mr. Palmer's challenge, a few of the ideas and experiences of one who has been experimenting with pictures of the New England mountains for a number of years may, we hope, be of some value in at least getting off to a successful start.

Instead of going blindly ahead in our attempts to utilise the mountain-tops for subjects, let us first make a classification of the various pictures which might be attempted. First, there are views of the mountain-tops from the distance. It is, no doubt, appreciated by all mountain-climbers who possess a spark of imagination and who are not merely interested in running up a large trail-mileage, that any mountain worth climbing, if viewed from certain positions—and only these certain positions—and under certain proper conditions of light and atmosphere, will offer a well-nigh irresistible appeal, seeming almost to fling a challenge to the climber to stand on its summit.

MOUNT CHOCORUA, NEW HAMPSHIRE THEODORE M. WURTS

Therefore, in attempting to photograph a mountain-top from below or from a distance, the chief thing to be desired is the proper combination of position, lighting, and atmospheric effects, which will reveal the almost magnetic quality of the mountain. How are these factors determined? We have but one suggestion to make. The photographer must be at heart a mountain-climber. And now, if our photographer-climber, having properly determined these controlling factors, can produce a picture which will in itself adequately reflect the challenge of the summit, he has in all probability achieved a large measure of success. "Majesty", by Mr. Palmer—in the January, 1929, PHOTO-ERA—is a splendid example of such a successful picture, although much of the depth and atmosphere has been lost in the halftone reproduction. Our own picture of Mt. Chocorua, also in the White Mountains, is another interpretation of the same effect.

The second general division we may make of our subject consists of the nearer views of the summits themselves. These nearer views may be either of the summit of the mountain on which we are climbing or of the summit of some other mountain close by. In attempting such pictures as these, we are entering one of the relatively unexplored paths of the realm of pictorial summits. Here simplicity of composition should rule, since it is very easy to lose the desired effect by showing too much detail. When one is part way up a mountain, the sweep of the slopes to the depths below gives the effect of being more sheer and unbroken than it actually is, and it is this illusion that we must capture in our pictures if they are to reflect the true grandeur of the view. This desired result, however, will not be obtained if an ordinary photographic record is attempted, since in such a picture the eye will in all probability be directed to the details of the view, revealing actual interruptions in the sheerness of the slopes, thereby making them look less steep than they actually seemed, or in other ways destroying the illusion which was so strongly felt when gazing on the actual scene and was therefore so desired in the picture. "Afterglow", which is a picture of Mt. Whiteface in New Hampshire, as seen across a deep ravine, would not show, as it does, a tremendous mountain wall looming across unfathomable depths had the detail on its slopes been reproduced. Under the same conditions a relatively clear detailed picture of the surface of the side of the mountain could have been obtained; but it would have had about as much artistic value as a map. Detail, in such a case, leaves too little to the imagination; the "mind's eye" is limited, not led on as it should be, to explore seemingly limitless depths and heights, and the awe-inspiring effect of the actual view is lost.

VISTA THEODORE M. WURTS

One time, during an ascent of Mt. Whiteface in the Adirondacks, we came out on an open ridge where we had a breath-taking view of the great slide on the eastern side of the mountain. Clouds hid the summit, and the ravine below was partially lost in a haze. The slide seemed to descend from unknown heights above the clouds and, with a magnificent sweep, disappear in

the hazy depths. The whole impression was one of swift and irresistible motion. An exposure was made with great care, but the result was disappointing, to say the least. We failed to achieve a picture. All we have to show for our trouble is a photographic record of a narrow, straight scar on the side of the mountain. There is no suggestion of sweeping motion in the photograph and consequently no appeal to the imagination.

Our third classification is that of views from the summits themselves. Though it must be admitted that most of the views from the tops adds to the impression that below the cloud-layer are great valleys and ravines. It may be of interest to note that in order to get the desired effect in this instance we have even tended toward the dreaded panoramic.

From the foregoing discussion it is evident that, although the subject of mountain-photography divides itself into three main classes, the method of approach in each case is fundamentally the same. In fact, it is the same in all pictorial work—namely, to make the picture call on the imagination to fill in that which it is impossible to record in black and white but which makes

AFTERGLOW THEODORE M. WURTS

are panoramic, there are other possible types of pictures available. We might try scenes giving the impression of depths below, views leading the eye gradually off to the horizon, thus giving the effect of vistas of great distance. Views from the summit, even those more or less of the panoramic class, owe their principal appeal to the climber to the fact that they give such impressions.

To try to convey some idea of how distance may be used as the main appeal in a picture, we are submitting the picture "Vista", where the desired effect is obtained by the successive ridges and valleys fading off to the horizon and a cloud-pattern which accomplishes the same effect in the sky. In "Cloud Fingers", the lower slopes of the mountains are hidden, but this only the difference between a photograph and an inspiring picture. In the particular case of mountain-photographs, it is the atmosphere of the mountain, its characteristic phases, and the inspiration of the views of the summit or from the summit that must be embodied in the picture if we are to obtain any satisfaction at all from the result.

In spite of the few pointers which we have endeavored to give here, the mountain-photographer will find much experimenting still to be done before he can approach this subject with any assurance of achieving pictorial results. Our own pictures accompanying this article bear evidence to this, as they leave much to be desired pictorially. However, we have a number of new ideas to be tried out on our next

CLOUD-FINGERS THEODORE M. WURTS

visit to the mountains; and, if luck is with us, we shall have advanced another step toward true pictorial effects in mountain-tops.

We should like to take this opportunity to thank Mr. Palmer for his suggestion as to how to pack the photographic outfit when on the trail. In the past we have been using the rucksack for all such equipment and fully appreciate all the weaknesses of this method of transportation. We hope soon to acquire a separate case for the camera and its accessories and to arrange for carrying it as suggested by Mr. Palmer, so that everything necessary will be available at a moment's notice when it is required.

Photographing Historic Washington Landmarks

JOSEPH L. KOCHKA

IN that delightful and instructive little book of his, "Fine Art and Photography", Henry Turner Bailey gives the three stages through which the usual amateur passes as he gains skill in the use of his camera. The first stage is when he snaps the things that are near and dear to him—his house, his girl, his baby, and his dog. Then he becomes a master of detail, should his love of the camera survive—everything now must be filled with infinitesimal detail. His technique is improving, and with it a wider knowledge of the fundamentals and a greater skill in manipulation. The third step all depends upon just how much he loves and can give expression to the really beautiful. He may enter the portals that lead to true pictorial art or he may remain outside the gates.

It is at this point that many of us turn to a field where we can make the pictures as sharp as we please and yet satisfy the esthetic leaning within us. Some of us choose the things that Nature has made and some of us choose the things that man has made. I made the choice one day, and it fell upon making pictures of all the old historic buildings that literally throng the streets and avenues of the Nation's Capital.

Photography is an old love of mine, and, of recent years, I have used it with considerable success during my summer-vacations. It was then that I discovered this new use, and it has given considerable pleasure, in addition to opening a rich new field in gathering interesting facts of historic importance about the city in which I live. It has added a new joy to life; it has opened my eyes to new facts; and it has given a new value to the streets through which I had driven so blindly to the story that they told.

Washington, like many other American cities, is changing daily. The old buildings are being torn down rapidly and replaced by more modern structures. Streets that once were distinctly colonial in their architectural make-up are turning to the new order in things architectural. The worn brick buildings, with their dormer windows and their iron-porches, are yielding to façades of white marble that bespeak Attic and European culture. Houses that once sheltered the Nation's great are being torn down

to let some great office building be reared in its place or a shop that will sell the fashions of the Rue Rivoli. Yet, here and there, red brick-houses stand that somehow evade for the time being their inevitable fate. Here and there stands some house in which the early statesmen of our country fought out our early problems—some house that has passed into loving hands which will keep it well throughout the centuries. Others are on sale, and it will not be long before they are gone. Perhaps there are photographs of them stored away in the morgues of the newspapers; yet, just as often, when the buildings are gone forever, no record of them will ever be found. Here it is that the humble amateur photographer can make his contribution. What of it if he duplicates some of the better known houses? The preservation of the others will more than make up for that duplication. And quite often the duplication will show the building or buildings at some later date and be of importance and interest because they portray the transitional period.

And although the old buildings are passing, there are still many of modern historical value, not only in Washington but in many of our cities and towns and along the countryside. For instance, in Washington there is a palatial residence on Du Pont Circle—No. 15, to be exact—that will always be of historic interest to Americans and to the world; for it was in this building that President Coolidge lived in the spring of 1927, while the White House was being repaired, and it was here that he brought the famous Lindbergh to spend the first night of his return to his native land after his flight to Paris. There are many other houses, but they will remain for another article.

There are many obstacles besetting the path of the amateur who attempts to photograph the buildings of a busy city. Even in a city famed for its wide streets, as Washington is, his camera must have a rising-front, or his buildings will be cut off, the top part not showing. Then he has to present the building without having the greater part of it hidden by trees. From the purely pictorial point of view, perhaps there is no great objection to a building being hidden beneath the overspreading foliage of some attractive tree; but the man of the next generation would much prefer to see what was behind the leaves of the shade tree. This means that ordinarily he must wait until late fall, winter, and early spring. Although the ambitious traffic officials, in their efforts to give the traffic more room, have widened some of the main streets of Washington, such as Connecticut Avenue, and have cut down long lines of beautiful trees, the more interesting and lesser known, or rather less popularised houses, are most often on streets that are still lined with trees.

Then, when he has waited for the leaves to fall, he must wait until the parked automobiles have departed, even if for only a few minutes, from their places in front of the buildings he wants to photograph. No. 1, the old stone building which George Washington used as his headquarters when he was surveying in this neighborhood, is marred slightly because the automobile has hidden a part of the interesting front of the old house. This was made, as were the other pictures, with a 4 x 5 Speed Graphic, and, unless otherwise stated, a tripod was used. Panchromatic film was used in each case and the exposure was determined, not by chance, but with the help of a Justophot exposure-meter. A K-1 filter was employed in each case, and the exposure lengthened according to the factor supplied on the card accompanying the box of panchromatic cutfilm. This picture was made on a sunshiny afternoon, about three o'clock in late November, and there was a good deal of traffic on the street. The exposure was 1/20 of a second, with stop F/11. This building is situated in Georgetown, at 2802 M St., N.W. In each case the address will be given for the information of the reader, should he care to visit the building while he is in Washington.

As a result of the parking-problem, the best time to photograph is early Sunday morning, especially in the down-town district. In the residential district, it is a matter of luck, although Sunday afternoon is a fairly good time, as most of the cars are out riding in the country or downtown at the movies.

No. 2 shows two houses typical of Washington architecture during the Civil War and Reconstruction days. The building with the "For Sale" on it was the home of Jefferson Davis, just before he left the city of Washington to marshal the Southern forces. Down the stone steps, hardly changed since that memorable day, he walked to become the leader of a doubtful cause. Up them Lee had come to visit him and discuss the fateful decision that was staring them in the face. This picture was made about 5.30 of a January afternoon, 2 seconds' exposure, stop F/11.

In No. 3, the old and the new are side by side. This old landmark stands opposite the northwest corner of historic Lafayette Square. It was the home of Stephen Decatur, he of Tripoli fame. In through that old doorway, little changed during the years that have passed, Decatur was carried by his friends after he had been fatally wounded by Barron in a duel that they

No. 1 In Old Georgetown
No. 2 Home of Jefferson Davis
No. 3 Stephen Decatur House
No. 4 Southworth House
No. 5 First Navy Office
No. 6 Warren Harding House
No. 7 Dolly Madison House
No. 8 Home of Perry Belmont
No. 9 Home of Admiral Dewey's Widow

WASHINGTON LANDMARKS

JOSEPH L. KOCHKA

fought on the outskirts of the District. This was made on a very cloudy day in the latter part of January, about 2.30 in the afternoon; stop F/16, 1 second.

No. 4 suffers from the presence of the fence and the clothes on the line. A higher point of view should have been selected, and perhaps a day when the wash was not being dried. It is the cottage where Mrs. Southworth, novelist, resided and died. Here she wrote many of her numerous novels. The building stands on the southwest corner of 36th Street and Prospect Avenue, N.W. In the background rise the spires of Georgetown College. Cloudy Sunday afternoon, about 1.30 P.M., F/11, 1/10 of a second, no tripod.

In No. 5 is shown a group of famous buildings. There were originally seven of them; but progress has already replaced one entirely and another in part. Here on Pennsylvania Avenue, Nos. 2107 to 2117, was situated the first Navy Office; and in these buildings lived Samuel Houston, the first President of Texas, James Madison, and Richard Rush. Made on a November afternoon, about 3 P.M., no tripod, F/11, 1/25; a good deal of traffic, but plenty of sun. The hardest problem connected with not using the tripod is to get the building lines absolutely plumb.

A modern version of a historic house is shown in No. 6. Here Warren Harding lived at 2314 Wyoming Avenue, N.W., while he was a Senator. Cloudy January morning, about 11 A.M., tripod, F/11, 1/10.

The world-famous Cosmos Club of Washington has its home in the equally famous Dolly Madison House, on the southwest corner of H St. and Madison Place, N.W. Late December afternoon, F/16, hazy, 1 second. (See No. 7.)

At 1617 New Hampshire Avenue, N.W., stands the home of Perry Belmont. When the Prince of Wales visited Washington in 1919 he lived in this house. Hazy morning in January, F/16, 1/20, traffic. This (No. 8) shows some of the elms for which New Hampshire Avenue is noted.

On the northwest corner of I Street and 16th Street, N.W. (No. 9), lives the widow of Admiral Dewey in the old brick house of the pre-modern type that was given to him by the Government on his return from Manila. December afternoon, 1/10, F/11. A very difficult subject on account of the brick-structure, the ivy-covered walls, situation on a very busy street, and the rather ugly trees.

All of these pictures were made on panchromatic material. The writer as yet holds no brief for or against the use of panchromatic cut-film in all cases for architectural purposes. It is recommended especially in the little booklet on the "Photography of Colored Objects" issued by the Eastman Kodak Company, and he is simply making an experiment with it. He is now using a K-3 filter in the place of the K-1.

He now has a generous store of pictures of these historic landmarks. They have taught him a good deal about the city he lives in, have given him many hours of pleasure, and have focused his photographic endeavors on one definite, well-outlined interest and end.

Although he realizes that not all cities are as rich in such landmarks as the Capital, there are, without doubt, unlimited opportunities in every State of the Union for the preservation in photographic record of historic buildings and sites. The outlet for them is usually the Historical Society, or the Museum, or the Library. In any event, the amateur who helps preserve these treasures has made a very definite and useful contribution through the medium of his camera and his hobby.

The Art of Forgetting

To FORGET—that is what we need. Just to forget. All the petty annoyances, all the vexing irritations, all the mean words, all the unkind acts, the deep wrongs, the bitter disappointments—just let them go. Don't hang on to them.

Learn to forget. Make a study of it. Practice it. Become an expert at forgetting. Train the faculty of the mind until it is strong and virile. Then the memory will have fewer things to remember, and it will become quick and alert in remembering the good things and will not be cumbered with disagreeable things, and all its attention will be given to the beautiful things—to the worthwhile things.

No matter what business you are pursuing, no matter what literary subjects you may be studying, no matter what scientific problems you are trying to solve, take up the study of forgetting. The art of forgetting will give added luster to all our literary, business, or scientific attainments, and it will add immeasurably to health of mind and body.—*Contact.*

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THAT TALCUM POWDER ILLUSTRATION — JACK A. DOYLE

Confessions of a Photographer's Model

As told to

JACK A. DOYLE

LIFE, to me, is one big nightmare of cameras and flash-guns. During my brief nine months, I've been photographed oftener than is the average person throughout the allotted span, which, so I've heard, is threescore years and ten.

As the first level beam of sunlight awakens me and I sit up the more to enjoy my pre-breakfast yawn, the winking eye of a lens is shoved up under my nose and the whirr of a Graflex shutter cuts in two my indulgence.

My slumbers are all too frequently shattered by the explosions of blinding flash-powder.

To have a day go without suffering nudity to illustrate some brain-storm on the part of my male parent is, indeed, unusual.

Yes, I have made my sacrifices for that elastic thing which men are pleased to call Art. *It's the bunk!*

Take, for instance, the day the Old Man was "smit"—or perhaps it's "smote", or "smitten"—with a brilliant idea for illustrating a well-known brand of talcum powder! That was two months ago, when I was a mere infant of seven months. My maternal parent was not at home when the idea was conceived, and the Old Man was obliged to shift for himself. My first intimation that

THE CRYSTAL GAZER — JACK A. DOYLE

something special was afoot was when I was tendered a generous piece of toast. My usual hour is 4 P.M.; it was not yet three.

Between nibbles I watched the performance. Upon my dresser reposes a mahogany mirror of more or less antiquity. The Old Man borrows this frequently, on sunny days, to produce back-lightings, in lieu of a spot-light. He took it now, and, placing it upon a table in the sun-porch, proceeded to leer into it from various angles.

Apparently his own peculiar type of beauty did not measure up to the demands, for he darted into my chamber, reappearing the next instant with my Teddy Bear, which, in those days, was as big as I was. Teddy he deposited a few inches from the base of the mirror. More bobbing and ducking around the table, until finally he seemed to stumble upon an angle that suited his artistic sense. Another lightning exit and sudden reappearance—this time with a tripod and a 4 x 5 Graflex.

From that instant on my interest waned. It was to be just another picture. I might have known it from that crazy gleam that lights up the Old Man's eyes whenever he becomes "inspired".

Knowing that my leisure would soon be interrupted, I gave my whole attention to the toast. Thus I was but dimly conscious of the fussing that inevitably accompanies the arrangement of backgrounds and reflectors. I was contentedly munching the last crumb when I was snatched out of my high-chair and borne to my chamber. Here I was reduced to nudity and left, thus naked, in my cot while the Inspired One searched for a set of my B.V.D's. Then came the ordeal of having these pinned on. Once I was about to burst into laughter at the sheer awkwardness with which the Old Man went about such a commonplace procedure. But my mirth was turned into a shrill shriek of protest as a pin-point perforated the caudal extremity of my spine. Finally, after what seemed æons, it was accomplished; I was clad—partially at least. Not that my sense of modesty is supersensitive, for art is ART, and I had long since passed the stage where blushes come easily. But the thought of being impaled by a safety-pin was rather unnerving.

AN IMMIGRANT — JACK A. DOYLE

Teddy, his usefulness for the moment being zero, was tossed aside, and I was deposited before the mirror in his place. From a powder-tin the Old Man sprinklered some white stuff upon the table and upon my knee, placed the tin just out of my reach, thrust a powder-puff into my hand, and dashed for the camera.

There, secure in his awareness of my vanity, he waited until I could no longer resist the lure of my reflection in the mirror. I suspected the trap the instant I leaned forward to remove the shine from the nose of my reflected self. My suspicions were realised as the shutter curtain whirred.

"But how", you ask, "does that prove that Art is the bunk?"

To which I make reply: "That talcum powder wasn't talcum at all. The Old Man had rifled Mother's *flour* barrel."

And, moreover, it all had to be done over again. The Old Man said the background should have been gray instead of black. The truth of the matter is, I think, that Mother was not there to absorb abuse when things ran not so smoothly.

And that is the biggest bone I have to pick with the Old Man. Regardless of the trouble and cost of film, when my efforts fail to satisfy he retakes; while with anybody else's "kid", he'll wear his pencil out on a negative first. Only a while back a woman liked the head of her precious "Davie" in one proof and the body in another. Did the Old Man retake? Not much! He made a couple of prints and lopped the head off one and stuck it onto the body of the other, then copied the result. All this right under my very nose!

Then right on top of this he became afflicted with another idea. This one called for a young man about my age gazing into a crystal and seeing therein a tin of milk. Being the only

suitable material in this neck-o'-woods, I was elected to portray the crystal-gazer.

Luck seemed to be with me when the Old Man could not procure a crystal. But my rejoicings were short and ill-founded in the face of another brain-storm. The stem was cut off a 200-watt electric light, and what remained of it was shoved into a hole of corresponding size cut in a cardboard box. Then a strip of black silk was draped around the box in a manner to give the impression that it was a real honest-to-goodness crystal resting atop the silk. Several yards of cloth were wound around my head to make a turban, and some vaseline was smeared over my countenance to pick up the light and make catchy highlights. Teddy was once more put to work, and, after the placing and focusing ordeal was over, the Old Man hung up some cheesecloth to diffuse the harsh light from the flash-gun, replaced the white light with a dim red one, gave Mother very definite instructions, and then opened the camera shutter. I was itching to get my hands on that fake crystal; but in the dim red light, I could not distinguish it, and the Old Man had to turn his flash lamp on it to draw my attention. As I reached for it, the inevitable occurred. A dull explosion and a blinding light, and, looking up, I could see a thick billow of smoke unfurling across the ceiling. Then I was snatched up and my nakedness wrapped in a blanket, while the windows were opened to clear the smoke.

The picture was a success in a way, but not as an "ad" for milk. In my eagerness to get at the "phony" crystal, my hands covered what I was supposed to see therein. Result—retake. Ultimate result: picture of a good-looking young man gazing at a tin of milk all draped with glass.

And lay off that heavy *Art* stuff! Houdini himself couldn't have got a real tin of milk up the stem of that globe. The tin of milk you see is no more the result of contented cows than is the present-day gin the result of a contented nation. The Old Man cut a picture of the tin from a magazine and pasted it inside the globe.

To toll off each and every atrocity to which I have been subjected during my life as a photographer's model would bore both you and me. My latest humiliation was having a handkerchief tied around my head and having the resultant photograph shipped off to an exhibition labeled "An Immigrant".

No, my life is not by any means a bed of roses; but I have my fun. Just the other day, while being posed with a bottle of cod-liver oil, I sideswiped the bottle, and at this writing the sunporch still smells like the hurricane deck of a sardine can.

And I have been purposely delaying the advent of the first tooth. Nine months old and still possessor of virgin gums! Rather would I be ridiculed as a laggard than lose my originality by becoming an "ad" for tooth-paste!

The New Beach Multifocal Lens

LINA LONGAKER

FROM the day that photographers have approached their camera from the side of art rather than from the cold viewpoint of science, new ideas have unfolded. The best studio-pictures of a generation ago, compared with the photographic studies of today, seem as crude as the first horseless buggies. But the end is not yet. For again, working from the art side, rather than from the science of optics, Howard D. Beach, who ranks as one of the deans of American photography, has invented a lens that seems destined to mark a new era in photography, since it makes it possible to portray objects and figures as the eye sees them.

For such a long time we have believed the legend that the camera always tells the truth, that until we come out from under the focusing-cloth and face the matter squarely, we do not realize that we do not go around seeing people with their feet elongated and their hands enlarged. Like the Japanese, who look at their beautiful cachimonas and see nothing strange in portraying the sky in a little square of blue housing the moon and a star, so we, bounded by the conventions of the camera, expect to see our photographic characters confined to one plane, with the foreground out of focus and the background blurred.

The greater the speed of the lens, the narrower the plane—has become almost axiomatic. The science of optics decreed that it could not be otherwise. Then Mr. Beach comes with his new lens, which, at a speed of F/3, gives a depth of F/8, and at a speed of F/8 is almost universal in focus. To those familiar with all kinds of lenses, it sounds almost impossible. So did it to the opticians to whom Mr. Beach first took his idea.

SPECIMEN PHOTOGRAPH MADE WITH BEACH LENS
LINA LONGAKER

They said, "Impossible!" But he was not discouraged. So the world has talked in the past to inventors.

He was convinced that, if one could play on a plate a number of lenses of different focal lengths, one would have true drawing and true perspective on the negative. He began to work with a single achromatic lens that had been ground into three zones of long, short, and intermediate focus. This original lens was the foundation of his work and explains the theory back of his multifocal lens. At present, in his studio-lens there are sixteen different lenses of various focal lengths playing on one eight-by-ten plate.

This means that with the new lens one is able to get the fine definition and accurate drawing formerly only possible to pinhole photography. Planes keep their proper places and figures their relative size. With the lens stopped down to F/16, Mr. Beach can point his camera out of his studio-window and have the window curtain five feet away and a church dome five hundred down the street in perfect focus. They are not wiry, as objects appear when photographed with the universal lens that has been made for small cameras, but well drawn, with that even flow of line and texture characteristic of the studio-lens.

The multifocal lens gives a clearness that is not sharp, but softened—as the eye sees. If one will stop with this in mind to look at a scene, he will see that some objects appear sharply, others softened; but none are blurred. This expresses exactly the results that the multifocal lens gives. As a result, it does away with a large amount of retouching on the negative.

The lenses within the multifocal lens are arranged in different zones in such a manner that they take the light from the distance and bring it into the shadowy parts. This gives a sense of great brilliance in pictures made with it. Instead of having sparkling highlights and soggy shadows, one finds that the shadows in pictures made with this new lens are luminous and deep. Artists have long recognised that shadows are as important in the picture as light. The Beach lens makes it possible for photographers to use shadows with the same telling effects as artists do.

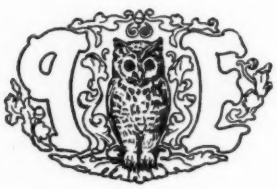
Another difference noticed in negatives when using the Beach multifocal lens is the developing possibilities. With other lenses, one had to stop development of negatives the moment the highlights were developed. The Beach lens makes it possible to develop into the shadows. The proper rendering of the shadows makes for true value. It is surprising how little one misses color when objects are rendered in their true tonal value.

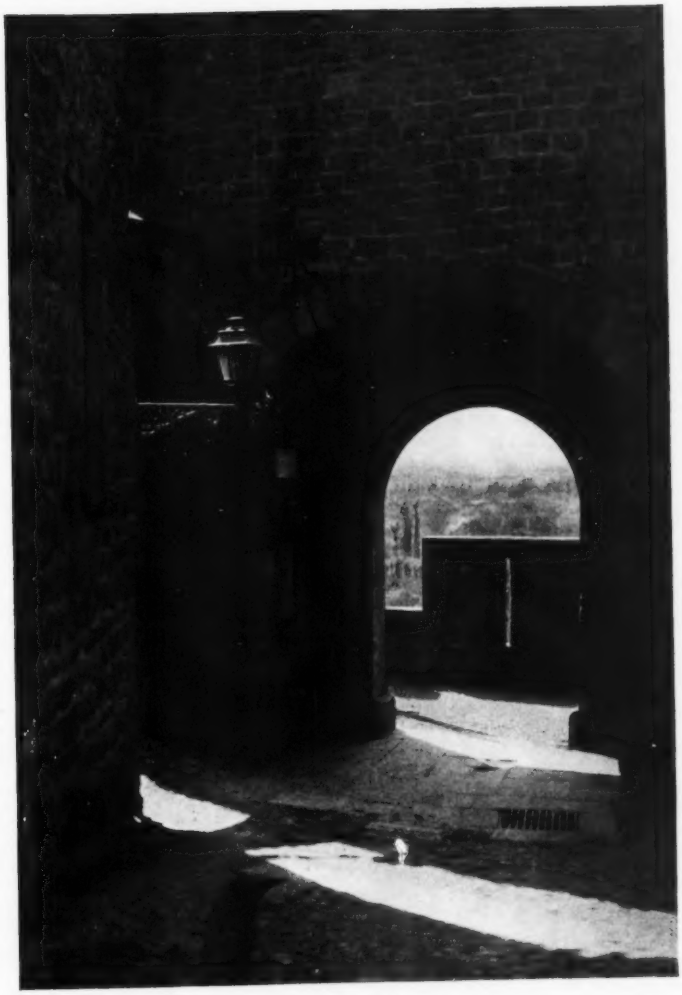
The lens literally frees photography from the prison of the piano bench. Instead of grouping characters to keep them on a single plane, one is able to arrange them, if one wishes, in the style of Rembrandt, around a table, and yet give every individual his money's worth. Or one can place them in different corners of the room without sacrificing either speed or clearness.

In the accompanying photograph, which Mr. Beach has posed not so much for composition as to illustrate the possibilities of the lens, one can see the table, with the books and tulips on it, placed three feet in front of his daughter, and Mr. Beach himself in the far corner of the room fully ten feet away. They are all properly drawn, and all are clear. The picture was made with the lens at an aperture of F/8.

Mr. Beach believes that because the lens renders the full figure correctly, with dress and skin in their true tonal value, full-length portraits will again become popular.

At present the lens is only manufactured commercially for the studio; but because it introduces a new principle into lens-making, plans are underway to make this multifocal lens for hand-cameras, process lenses, wide-angle lenses, and commercial lenses. When it has been so applied, out-of-focus pictures, Mr. Beach believes, will become practically unknown.





BEHIND THE RAMPARTS
MARIO LUCIO SCACHERI
HONORABLE MENTION—ARCHITECTURAL SUBJECTS

THE FOKKER AIRPLANE — LEWIN B. BARRINGER

Through Western Skies With a Box Camera

LEWIN B. BARRINGER

LAST spring I was fortunate enough to have the experience of making a five-hundred-mile trip by air from Tucson, Ariz., to Los Angeles. Never had I imagined that I would ever be able to see so much or such interesting country at one time.

The trip was made in a Fokker "Universal", a single-motored six-passenger monoplane of the Standard Airlines. In these airworthy crafts the passenger sits directly beneath the wing and has nothing to obstruct his view besides a strut or two. There are some who have difficulty in believing me when I say that for the greater part of the journey, I was able to see over one hundred miles out of either side of the plane. Being familiar with the topography of southern Arizona, I was able to distinguish mountain-ranges and peaks which ruler measurements on accurate maps showed to be about a hundred and thirty some miles distant from our line of flight.

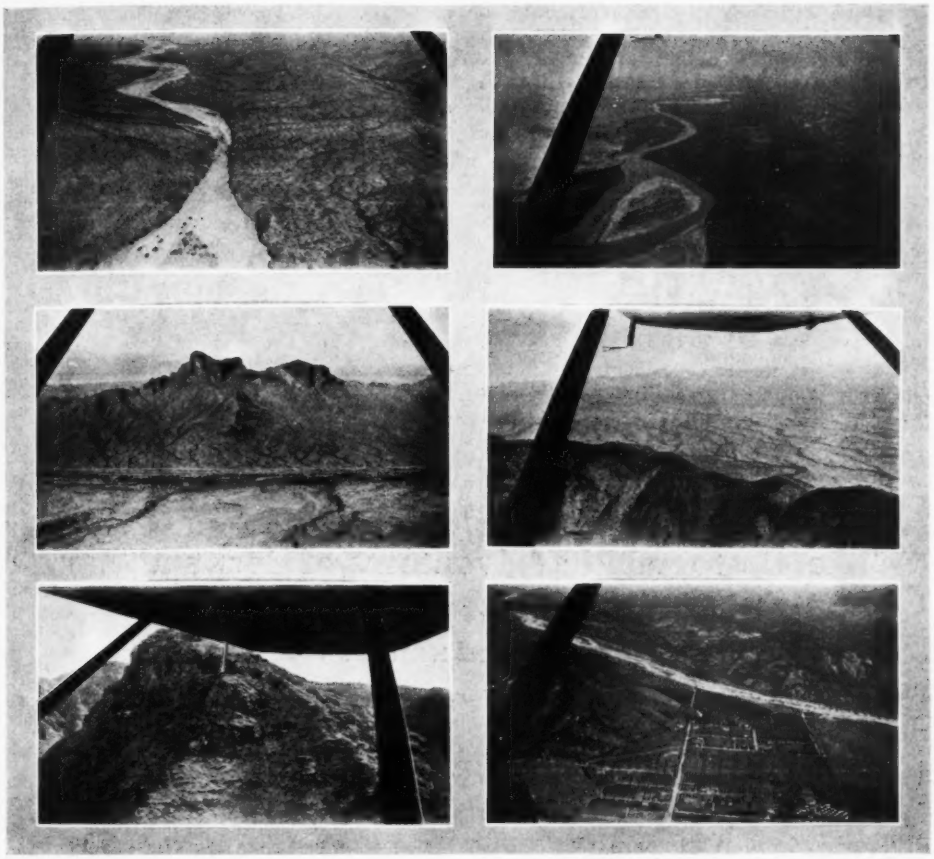
We left Tucson at eight o'clock in the morning and made our only stop at Phoenix shortly after nine, having covered a hundred and ten miles. The luxurious green of the irrigated expanses of the Salt River Valley were very welcome after the great stretches of arid desert flown over. It was colored principally by the dull green of cactus and desert shrub, following the branching courses of the washes and dry streams. Sometime we saw clusters of the tall, slender stalks of giant cacti looking like needles dropped from the sky, and here and there was a brilliant yellow spot, a Palo Verde tree in blossom.

Having taken on three additional passengers at the Phoenix airport, we were on our way once more headed due west. From the edge of the irrigated lands the character of the terrain over which we flew changed constantly. The desert grew more arid and barren of vegetation and the mountains became more rugged. We crossed the Aqua Fria River,winding tortuously in a southerly direction. As is usually the case, it was quite dry, although the illusion of water was there.

Shortly before reaching the Colorado we crossed a black, rugged group of volcanic hills, with their ancient lava flows showing up in marked contrast against the lighter sand color of the desert.

Nearly a hundred miles of the snake-like Colorado was visible as we flew over Ehrenberg and into California. Here we came to desert in the true sense of the word. Running north and south were many long narrow mountain ranges, and between these were stretches of desert seemingly devoid of any life. Practically no vegetation was visible, and real sand dunes could be seen for miles, looking very much like the ripple marks in beach sand.

Far to the south the great Salton Sea became visible in the blurred haze of midday heat. The



No. 1 The Aqua Fria River
No. 2 Picacho Peak, Arizona
No. 3 Peak in San Tán Mountains
No. 4 Colorado River
No. 5 Volcanic Hills
No. 6 Orange Groves, California

2A BROWNIE AERIAL PHOTOGRAPHS — LEWIN B. BARRINGER

rising columns of hot air tossed the plane about as if it were a small boat at sea.

Ahead of us loomed snow-capped Mt. Jacinto of the Sierra Nevadas. We passed through San Gorgonio Pass at an elevation of about nine thousand feet above sea level, and on each side towered snow-covered peaks over ten thousand feet high.

West of the mountains we no longer had the crystal-clear air of the very arid regions. It was quite hazy because of sea mists blowing in from the coast. We flew over belts of citrus land where each orange tree showed clearly. The high mountains continued for some time to the north of us. The valleys were rather bare except for an occasional splash of green where irrigated cultivation was taking place. The mountains were heavily timbered, their bare, rocky summits above timber line streaked with snow.

The City of San Bernardino was soon behind us, and not long afterwards we were gliding down to the field south of Los Angeles, over a forest of oil-well derricks. The city itself and the Pacific were hidden from view in a veil of fog.

What opportunities such a trip offers the amateur photographer! My equipment consisted of one Eastman Brownie 2A, the sturdy little box camera that has made picture-making so easy for the amateur. I made forty exposures in all and most of them were successful.

I attribute what success I had in the taking of these pictures mainly to three favorable condi-

tions: first, the remarkable clearness of the atmosphere; second, the fact that they were made from a steady cabin plane; and third, the circumstance, that although the plane was averaging 110 miles per hour, it was always at a sufficient altitude to prevent a blurred picture, which would otherwise have resulted from the slow speed shutter.

In telling just how I made these pictures, I must first give a description of the windows of the plane. There is one long window along each side of the cabin. It is about six feet long by fifteen inches high. In sliding grooves are overlapping panes of glass that can be slid aside. I made one or two exposures through the glass, but this is not advisable, as the glass becomes slightly spotted with oil from the engine.

In making most of the pictures, I would slide the panes apart until I had an aperture of about six inches. Then I would hold the camera about three inches back of the opening to prevent any possibility of the draft from the slipstream interfering with the shutter. I would then rise slightly out of my seat and sight over the top of the camera. As there were no fixed sights, this was a somewhat inaccurate method of sighting, but the best that could be done in the circumstances. The angle at which the pictures are made, the fact that the window was level with my head and the low ceiling of the cabin, all prevented my using the conventional finder.

In a trip of this kind, so much of real interest is seen in such a very brief space of time that the human mind cannot retain it all. Only a series of pictures made along the way will bring back to one many of the inexpressible delights of such a journey.

The Photographic Adventures of Bert and Ray

III—The Fun of Making Prints

NEIL WAYNE NORTHEY

(Bert and Ray are two camera enthusiasts who have fitted up a darkroom in the basement of Ray's home. The first Sunday of each month has been set aside by them as "camera day"—a day that is to be devoted exclusively to picture work of some kind, rain or shine. In the last instalment we read of their first lesson in developing films, the films having been exposed on their first "camera day", which was spent on a fishing trip. Naturally they were eager to see what kind of prints they could make from the negatives, and the following pages give their experience.)

"WHAT'S that you have?" asked Ray, as Bert staggered into the darkroom carrying a narrow, cupboard-like affair with several shelves. While he had been waiting for Bert to arrive, Ray had been going over the notes on printing he had made that day under Mr. Harley's instruction.

"That's our bookcase, magazine-rack, and negative-file for our photographic library", grinned Bert. "I made it today. Then I took the copies of PHOTO-ERA MAGAZINE that have arrived, went through the advertising pages, and wrote a dozen letters to manufacturers asking for literature giving information regarding their products. I think it will be interesting to try out some of the printing-papers, developers, and such things that look good; and the literature will be a real addition to our library."

"Here's something else we can keep in our library", said Ray, and he handed the notebook to Bert. "Whenever either of us gets hold of a good formula, or a piece of information, he can write it in."

Bert looked at the notes that Ray had made covering sick negatives and prints, which Mr. Harley, the local photo-supply dealer, had mentioned as being the most common. There were also a number of hints regarding other things.

"Go ahead and read 'em while I mix the developer", said Ray.

And so while Ray arranged everything in readiness for printing, Bert read the notes pertaining to the common ailments of prints and their causes. Here is what he read:

ABRASION MARKS.—Black thread-like lines or smudges on the face of prints caused by friction, usually against other paper when removing it from the package. *Remedy:* Rub the dry print with alcohol. Keep the paper in a light-tight box during printing, where it can be easily removed.

BLISTERS.—The loosening of the gelatin from the paper in spots. May be caused by too violent washing of the prints, and especially if strong-flowing tap water containing air strikes the backs of the prints; defective coating; uneven temperature of solutions, which causes uneven expansion of the coating; too strong hypo; too warm wash-water; lack of acid or too much acid

in fixer; heating of print by holding too near the printing-light, then plunging into cold developer. *Remedy:* Use prevention.

BLUE TONES.—Caused by lack of bromide in developer; underexposure and forced development.

BLURRED IMAGE.—When negative is sharp. Negative is probably reversed in the printing-frame; printing-frame spring is too weak, permitting movement of back, paper, and negative; too thick mask used between negative and paper.

BROWN TONES.—Caused by old or imperfect developer; overexposure with too much bromide; too warm fixing-bath; impure sulphite in fixer.

CHALKINESS (same as Hardness).—Too much contrast, in which the highlights are pure white. *Remedy:* Reduce the negative; use soft grade of paper.

COCKLING.—Prints that shrivel, wrinkle, or curl unevenly, when drying, sometimes caused by overfixing in a strong alum-acid-hypo bath. *Remedy:* Dry between lintless blotters, or on a rack covered with cheesecloth. Add a little glycerin to the last wash-water.

DARK EDGES.—If the middle of the print is clear, the paper has probably been stored near fumes from chemicals, turpentine, or gas; paper may be old; not enough bromide in developer.

FADING.—Due to insufficient fixing or not enough washing after fixing.

FINGER-MARKS.—Caused by touching the emulsion with moist fingers, which are probably impregnated with developer or fixer, when removing the paper from its package, placing it in the printing-frame, or before it is thoroughly soaked in developer.

FLAT.—Caused by weak negative, or by using soft grade of paper with thin negative; developer too old. *Remedy:* Use contrasty paper; print some distance from the light; use fresh-diluted developer; cut down exposure to minimum; use as much bromide as the print will stand without changing the tone.

FOG.—Caused by old or defective paper; handling paper in unsafe light; failure to cover paper-supply during exposure; lack of potassium bromide in the developer (if whites appear gray or fogged); underexposure and long development; old chemicals, or improperly mixed formula; hypo in developer; general carelessness; too much carbonate for the amount of sulphite used in the developer.

FRILLING.—(See paragraph appearing under this head for negatives.)

GRAYISH WHITES.—Caused by lack of bromide of potassium; if margins of print are gray, denotes old or light-struck paper; undertimed and forced development.

GREENISH TONES.—Overprinted; too much bromide in developer; exhausted or old developer. Use less bromide in weak developer.

MOTTLED OR PATCHY.—Caused by overexposure and short development; uneven development; failure to rinse in short-stop between developer and fixer.

MUDDY.—Extreme overexposure; negative too thin or too weak for the grade of paper used; developer too weak.

SCUM.—A whitish appearance on the face of the print. Caused by too much acid in fixer; fixer too warm; too much fixing in old, milky hypo-bath; dirty wash-water; lack of washing. *Remedy:* Sponge off surface thoroughly before drying print; let fixer set, and drain off clear solution for use.

SHADOWS TOO DARK.—Caused by contrasty negative. *Remedy:* Block out quick-printing shadows with a piece of cardboard during part of exposure, keeping the cardboard constantly in motion to prevent a sharp line showing.

SPOTS.—If dark, may be caused by iron in the water; if round and dark, probably caused by air-bells preventing action of fixer; if small, black specks, they are caused by pinholes in negative. *White spots:* If round, caused by air-bells preventing action of developer; if irregular, white specks, they are caused by dust between negative and paper or on printing-frame glass.

STAIN.—If covering entire print, probably caused by forced development in old and colored developer, or by prolonged fixing in developer-stained hypo-bath; or may be underfixed or not sufficiently washed; or too much iron in the water. *Brown stain:* Not fixed soon enough after development; too much exposure to the air and warmth of the fingers while inspecting during development; hypo in the developer; uneven fixing due to lack of agitation when first placed in hypo-bath; developer too weak or too old; uneven covering of the paper with developer, caused usually by a lack of solution or curling of the paper. *Pink or Purple:* Insufficient fixing; lack of bromide in developer. *Yellow:* Same causes as brown. Also caused by old sulphite in developer; failure to rinse between developer and fixer; too much fixing in warm hypo; too much carbonate in the developer.

While Bert was reading the notes, Ray was busy with other things. First, he arranged the three trays on a board above the darkroom-sink, as he had done when the films were developed. In the first, on which he had scratched a "D", he placed developer, after he had mixed it with the required amount of water. In the middle tray was clean water, to which he had added acetic acid (of the kind known as "28 per cent.")

at the rate of a half-ounce of acetic acid to each ten ounces of water. The purpose of this was to act as a short-stop to check instantly the development of prints when they were taken from the developing tray, and at the same time rinse them before they were placed in the acid fixer. The right-hand tray, marked "F", contained the same acid fixer that had been used for fixing the films the preceding night.

On the darkroom-table he placed the negatives, printing-paper, and printing-frame. The films had been cut apart and placed temporarily in an old book, each film between separate leaves and protruding enough to be seen. This prevented their becoming scratched, dusty, or accidentally spotted with liquid, as sometimes happens when films are left unprotected during printing. After printing, each film was to be filed in a transparent envelope negative file. Above the developing-tray was the ruby-light, which permitted inspection of negatives or prints during development.

On the wall above the darkroom-table, Ray had fastened a light-tight box, which was about eight inches square on all sides, in which he had placed a 75-watt frosted bulb. One end of the box that faced along the wall had been hinged so that it could be opened to expose the light for printing. In front of this open end was attached a board like a shelf on which to rest the printing-frame during exposure. Across the board he had drawn lines every five inches, starting ten inches from the bulb and ending at thirty inches. These lines had been numbered 1, 2¼, 4, 6¼, and 9 respectively. In the side of the box facing outward had been cut an opening six inches square, which Ray had covered with ruby-fabric. It was his intention to remove the 75-watt bulb and insert a small, red one whenever he developed negatives; and by closing the hinged side, he would have another ruby-light for use over the work-table. When used with the large bulb for a printing-light, the ruby-fabric side would allow plenty of light for arranging the negative and paper in the printing-frame while the hinged side was closed.

Bert finished reading the notes and came over to inspect the printing-box. "What's the purpose of the scale?" he asked.

Ray grinned. "That's a little time-saver I figured out myself", he said. "I got the idea after watching Mr. Harley run through some prints this morning. Ordinarily he uses a printing-machine, which, of course, means that every negative is printed the same distance from the light; and in order to get the correct exposure on each print, he must vary the printing-time according to the density of the negative he is printing. That is all right for average negatives; but yesterday he had a few that he printed by hand, so that he could practice what he called 'dodging', in order to improve the prints. That is, if one corner of a picture printed too dark, he placed the printing-frame some distance from the light to slow down exposure, and then he moved a strip of paper back and forth in front of that corner to cut down the light on that part of the print."

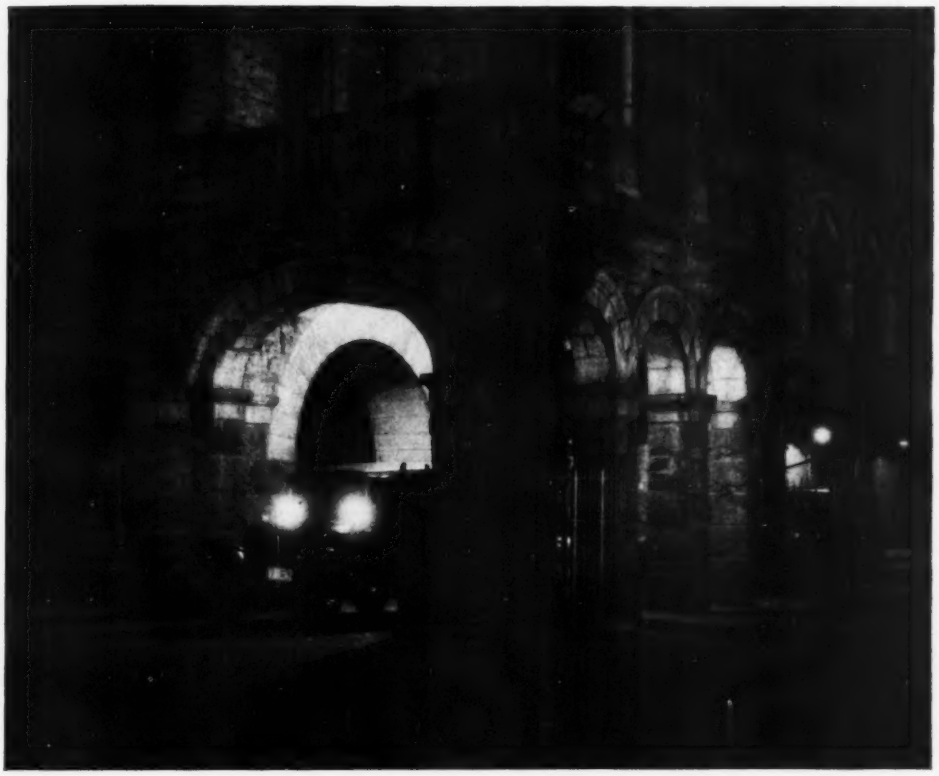
"Good stunt! But where does the scale come in?"

"Well, suppose we call line 1 our home printing line; that is, ordinarily we will expose every negative with the printing-frame on that line, and vary the time of exposure according to the density of the film. Now, suppose we have a negative that prints in 6 seconds on line 1, but we decide to move it back a little and increase the printing time to enable us to shade a portion. The question is: How much must we increase the printing-time?"

Bert thought a moment. "Seems to me I learned in physics or elsewhere that light decreases in volume according to the square of the distance."

"Exactly. And so I have figured out the square of the various distances thus: 100, 225, 400, 625, 900. Using one hundred as the factor 1, the ratio of exposure at the other would be 2¼, 4, 6¼, and 9 times whatever was required at 1. For example, if we have a negative that requires 6 seconds on line 1, we know that it will need 2¼, 4, 6¼, or 9 times 6, depending upon which line we print from. And that isn't all. Suppose that the average negative prints in 6 seconds, at line 1, on a normal grade of paper. Again, suppose we have a thin negative which we estimate is about one-fourth as dense as the average, or, in other words, needs one-fourth the exposure. One-fourth of 6 is but 1½ seconds, which would be mighty hard to get. So we set the printing-frame on line 4, where it receives but one-fourth as much light, and give it the normal exposure. If we find that is correct, we mark on the margin of the negative 'N-6-4', and the next time we print from that negative we know without experimenting that we must give it 6 seconds on line 4 on normal paper.

"Of course, much depends upon the make and grade of printing-paper we are using; but the scale will apply to all after a trial or two. It might be that the negative would produce a better print on contrasty or 'hard' paper, in which case we would mark it 'H-6-4', or whatever the exposure might be. If a negative required a soft grade, we would use 'S'. According to the instructions that came with the paper,



THE ENTRANCE—MOUNT ROYAL STATION, BALTIMORE
GORDON H. COSTER
HONORABLE MENTION—ARCHITECTURAL SUBJECTS

if we print weak negatives some distance from the light, we will get better detail than if they are printed up close. Also, if we ever have occasion to print from large negatives, which must be held farther from the light than small ones during exposure, we can make the change without upsetting all of our calculations."

"Pious idea", said Bert. "You surely are getting down to business fast. Suppose we try out the box and see how it works!"

Ray picked out a negative that seemed to be sharp and of average density. "Let's try this one", he said. It was an exposure he had made, showing Bert holding the fish they had caught on their first "camera day" trip; and in order to be sure that nothing would be cut off, Ray had stood back farther than was really necessary, with the result that there was considerable uninteresting space around the edges.

"We need a mask for that one", observed Bert. They examined the rest of the negatives and found a number that could be improved by masking when they were printed.

"Well, Good Friday!" exclaimed Ray. "Printing-masks are one necessity I completely forgot!" He rummaged in a box under the work-table that had been used for a waste-paper container, and pulled out several of the strips of backing-paper that had been removed from the films when they were developed. "Let's make some from these."

Ray hurried upstairs and returned shortly with a pair of scissors, a small drawing square, a piece of heavy glass, and a safety-razor blade. The strips of opaque backing-paper were cut up into pieces the size of the films; and with the help of the square it was a simple matter to cut a number of openings of various sizes and shapes and in different positions on the masks, by placing the paper on the glass and using the razor blade along the square.

While Bert was cutting out the masks, Ray hunted up a piece of string, a compass for drawing circles, a pencil, and two pins, and proceeded to mark out a number containing an assortment of sizes in circles and ovals. The ovals were made by sticking the pins through the mask-paper and into a soft board, tying a string between the pins with a little slack, and then marking around within the bounds prescribed by the string. By varying the distance between the two pins, and by changing the length of the string, it was possible to make any size or shape of oval.

When the masks were finished, Ray closed the door of the printing-light and cut a piece of the printing-paper into strips about an inch wide. "What are those for?" asked Bert.

"For experimental exposures. No use wasting a whole sheet until we find out how much time to give it."

Ray cleaned the glass of the printing-frame, placed a negative on it with the dull surface uppermost, arranged one of the strips cornerwise across the negative, clamped down the back, and set the frame on the shelf in front of the printing-light door at line 1. "How are we gonna count seconds on this?" he asked.

Bert thought a moment. "Suppose we tie this string to a nail in the ceiling, and then fasten a weight to it like a pendulum. We can count the number of swings that are required for correct exposure whether we know how many seconds they represent or not. That would be easier than to follow the second-hand of a watch and maybe at the same time be trying to shade part of the negative."

"That would be all right except for two reasons", said Ray. "When we mark the correct exposure on the margin of the negative for future use, we want it in *seconds* instead of *swings*, because we might not get the weight tied the same length the next time and the swings would be different. Then again, if it were a dense negative, we wouldn't want to spend a minute or two counting swings for every print when we could use a watch and simply look at it occasionally during exposure to see when time's up."

"How about using a pendulum on the short exposures, and tie it exactly at three feet?—then we could always make it the same", suggested Bert.

"That might work", said Ray.

After the string had been tied in place, Ray gave the weight a push and compared the swings with the second-hand on his watch.

"That's just a little faster than one second each swing", he said. "Let's lengthen it a bit and maybe it will be one second."

Bert dropped the weight down a ways and gave it another start.

"That's it", said Ray, at the end of half a minute. "Exactly thirty times across in thirty seconds. How long is the string?"

Bert measured it. "Thirty-nine inches", he said.

"Good", said Ray, "Let's make two marks on the wall thirty-nine inches apart, so we'll have it for a measure in case we break our string sometime". And so it was done.

"Well, I guess we're ready at last", said Ray, and gave the pendulum a swing. As it swung back to its starting point, Ray opened the printing-light door and began to count. At the eighth swing (four times over and back)

HOUSES! HOUSES!! HOUSES!!! HUBERT STEAD
HONORABLE MENTION—ARCHITECTURAL SUBJECTS

he closed the door again to stop the printing.

"I'll run 'em through the developer and drop 'em into the short-stop. You be ready to rinse 'em around a bit and then transfer 'em to the fixer. In that way we'll not be carrying hypo into the developer on our fingers."

Ray developed the strip and dropped it into the short-stop. In a moment Bert fished it out for examination.

"Looks a little light", said Ray. "I think ten would be about right."

Out of the package of paper came a full-sized sheet. Ray wrapped the package of paper up again to shield it from the printing-light during exposure. In a short time the boys had their *first print* floating in the fixer.

"Isn't it a daisy!" exclaimed Bert.

"Best one we've made yet", laughed Ray, and started unwrapping the package of paper for another sheet. "Say, I'm afraid this unwrapping and wrapping would get to be old stuff if we had many prints to make. And besides, there is danger of scratching the paper and causing abrasion marks. What we need is a light-tight box with a hinged lid in which to keep our paper during printing."

"Yes, and if we were making a number of prints from each negative", said Bert, "we should want another box to drop the exposed sheets into until we were ready to develop all of 'em. No use developing one print at a time when, if they were all printed, you could run all of 'em through without stopping to wash and dry your hands between each."

"I'll try to scare up a couple of boxes before we print again", said Ray.

The next negative selected to print from was a view of Bolle's Lake, which Bert had taken from camp. The scene had looked especially beautiful to him because of the cottony clouds that had

been floating in a blue sea above, and which had been reflected in the water of the lake together with the willows and bulrushes that grew along the marge.

Bert looked at the print after he had placed it in the fixer and had seen to it that there were no air-bells clinging to its surface to cause spots.

"Well, I'll be", he said, and the way he said it showed disappointment. "Not a cloud. What do you suppose is the cause of that?"

The print, although technically good, appeared very commonplace, with its white sky and almost black water.

"Must be something to do with the exposure", said Ray. "In fact, it strikes me that several of these negatives show a need of more careful exposure. Take a look at that after you get it in the fixer and see what's wrong", and he flopped another print, which he had just developed, into the short-stop.

It was a close-up picture of Bert in a boat at the lake-shore just below camp. When Ray made it, he had waded out into the lake and had pointed the camera toward the shore, so that their camp would show in the background. Instead, the camp was very much out of focus in the distance.

"Here's what I don't understand", said Ray. "I set the focus scale at fifteen feet, which apparently was just right to get *you* sharp in the view. I set the exposure-scale to correspond with the light-conditions, and the print looks as though the exposure was O.K. I'd like to know if there isn't some way to bring the background into a little better focus in such a case."

And thus the printing and the discussion went on. At the end of fifteen minutes the bottom print was taken out and placed in a dish of fresh water. Each time a new print was added to the top of the pile in the fixing-tray, the bottom print was removed; and between times, the prints were prevented from sticking together by rocking the tray.

"How are we going to wash these prints?" asked Bert, after the last one had been given its fifteen minutes in the fixer.

Ray smiled. From some place he produced a long piece of half-inch rubber tubing. One end had been closed by folding back a couple of inches and wrapping it securely with twine. For a distance of about four feet, at intervals of four inches, he had cut small holes in the tubing. Ray coiled this end around the outside edge of the bottom of the darkroom-sink and attached the open end to the faucet. When the water was turned on, a fine stream issued from each hole in the tubing, which kept the prints in motion during the half hour they were washing. He stood a four-inch length of radiator-hose over the drain, which raised the water in the sink to that level before it could flow into the drain.

After the prints had been started washing, and a large square of cheesecloth had been stretched between two boxes on which to dry the prints, the boys sat down to discuss plans for future activities.

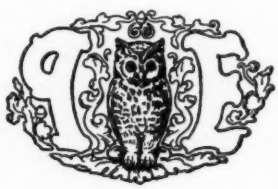
"It's my conviction that no one can make a satisfactory print from an imperfect negative", began Ray; "and no one can make a perfect negative with imperfect exposure. In other words, a good picture starts with the negative exposure; and if we expect to get anywhere, we had better get a little more light on the subject."

"Your deductions sound as right as a Book of Knowledge", said Bert. "How are you gonna get the 'info'?"

"Right here", replied Ray, as he held up a copy of PHOTO-ERA MAGAZINE. "I have a hunch that if we write the editor a letter, he will tell us some things about a lens, and about the openings in the shutter, and about other things related to exposure that will save us many a film."

"Yeh! And don't forget to ask how to take clouds."

(To be continued)



THE SMOKER — E. H. STUERMAN

My Universal Camera

E. H. STUERMAN

PARADOXICAL as it may seem, to mention or advocate a certain type of equipment as "universal", in any field of endeavor, whether that field be vocational or avocational, is sure to cause discussion. Differences of opinion are bound to occur, and perhaps, even ridicule, whenever one particular type is set forth as universal equipment or nearly universal. That is as it should be—being the natural sequence of human preferences. If it were otherwise and everyone were partial to one certain thing, there would be no place for the other useful things, especially in a commercial way.

As a background to this article, a bit of the writer's photographic history will not be amiss, insofar as it will enable the readers to judge sanely for themselves and not form too hasty conclusions on the assumptions of one imbued with joy and enthusiasm of a first camera.

For the past fifteen years I have been intensely interested in what can be accomplished with the camera. Starting with a Christmas-gift camera of the fixed-focus box type, I have been successively enraptured with the roll-film, plate, view, and reflecting type cameras. Each at its particular time has been the ultimate in my affection, and I have exposed in each many negatives on kindred subjects for comparison, at the same time widening the field of my photographic activity.

However, after having owned and used every type of camera, I now find time for retrospection. The one camera that stands out pre-eminently, in respect to the number of negatives made and the versatility of the camera, is my 2½ x 4¼

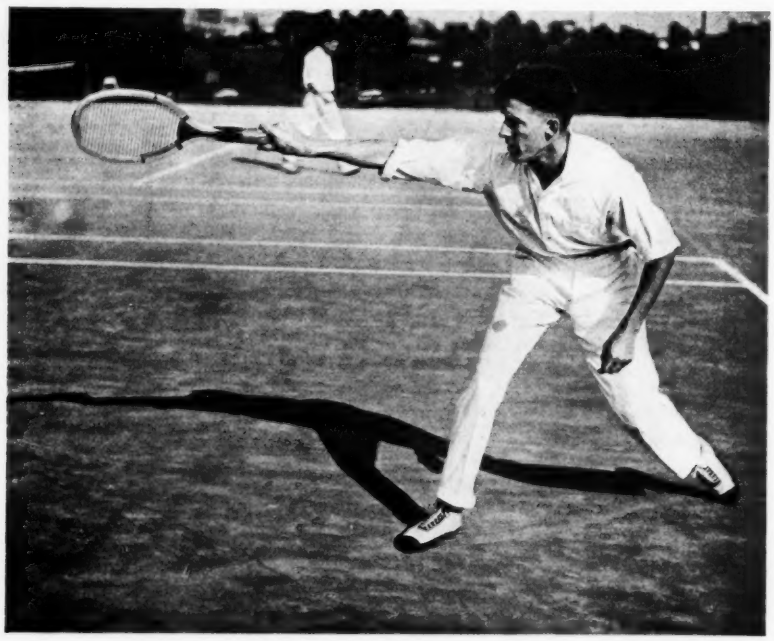
roll-film camera; and so far as I am concerned, it has proved itself to be my universal camera. Yes, I know what you are thinking about my making such a statement; but let us go further!

In considering an all-purpose camera, many things have to bear upon the final selection. One of the most important requisites, of course, is the ability of the particular camera to do the work at hand, and a very good second to this requirement is the portability of the camera. Many times—and I believe it has been the experience of all of us—portability of our photographic equipment takes preference over the best type of camera for that particular work. This is especially true on an extended trip, where the convenience of a darkroom is not available.

I believe a résumé of the various cameras used generally for all-round work will give a better idea of my understanding of the word "universal".

Taking the simplest camera on the market—the fixed-focus box camera—it is very limited in its photographic possibilities for the advanced worker, with its slow and uncorrected lens and equally slow shutter; but, nevertheless, in one branch of photography it stands head and shoulders above all. That one branch is the obtaining of courtroom pictures. Any advanced worker will do well to give this camera consideration if ever he runs into difficulties in attempting to make courtroom pictures. As you know, the use of cameras in court is strictly prohibited—at least, it is so here in St. Louis; but pictures of notorious defendents are made in the St. Louis courts, and this is how it is done. A box camera is wrapped up in paper with a hole cut in the paper just in front of the lens-opening. It is easily carried into court, passing as a package of some sort. Once in the courtroom, the wrapped-up camera is placed upon some firm support, other than a tripod, near the one to be photographed. During most trials there are certain tense moments when nearly everyone is motionless. It is at this time that the exposure is made. Aside from this work, the box camera has little to recommend it, so far as the advanced amateur is concerned.

The one camera, in my estimation, that comes a close second to the roll-film camera is the groundglass back plate or cut-film camera. It, of course, has the advantage of groundglass



THE CITY CHAMPION — E. H. STUERMAN

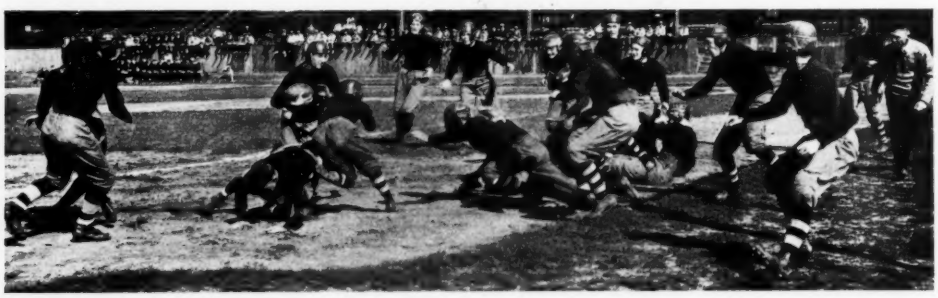
ACROSS
THE BIRDMAN
E. H. STUERMAN

focusing, which is preferred by many. However, the use of plate or film-holders has always seemed rather fussy to me, especially when operating some distance from home. Filmpacks reduce this inconvenience somewhat; but there is ever present the possibility of the tab being torn in pulling out, and, as a result, photographic operations being tied up for a while.

The reflecting camera is about as fool-proof as it is possible to make it. With the correct exposure-time, simply look into the hood and arrange subject or viewpoint until it is satisfactory; and then press the lever. But the bulkiness of the whole affair! A reflecting camera of 3¼ by 4¼, and larger, is a considerable load to carry; and, while we are mentioning it, I do not see any good reason for having a reflecting camera in the small 2¼ x 3¼ size. A camera of this small size can just as well be without the reflecting feature, on account of the great depth of focus of the short-focus lens which it employs.

To my way of thinking the view-camera is for the studio and interior work—it is real work carrying a 5 x 7 view camera, much more an 8 x 10. Except for the professional photographer, I can see no reason why a view-camera should be used for outdoor work. In outdoor work, it is slow to get into operation, attracts undesirable attention, and, in nearly every case, the same or better results can be obtained with a more inconspicuous camera.

Certainly, I am not so enthusiastic as to believe that the small roll-film camera can do every job best; but the roll-film, with the consequent enlargement of the negative, can give a very good account of itself. My roll-film camera is of the so-called "Specials", equipped with a high-speed anastigmat and having sufficient range of shutter speeds to cover my photographic requirements. It is handy, can be slipped into the side pocket of the car, takes little room in the traveling-bag, and can be carried unobtrusively. It is quick to get into action and attracts hardly any attention from the persons to be photographed. Another feature that has come to be quite a point in my partiality toward this camera is the fact that rollfilm of the 2½ x 4¼ size can be obtained almost anywhere. True, the negative material is limited to "blind" rollfilm of practically one speed. It would be quite an aid, in some classes of work, if panchromatic rollfilm could be secured. Affecting this matter, I believe, American manufacturers will soon have panchromatic rollfilm on the market. The Imperial Company of England has panchromatic rollfilm, and no doubt the film-makers over here will follow the lead. For my camera, I have various auxiliary lenses; namely, the sharp and diffused portrait lens and the diffused pictorial lens. With the portrait lens, I can work within twenty-two inches of the object, which is close enough for all but the very smallest objects.



GOING THROUGH — E. H. STUERMAN

Then, too, the planning of a photographic expedition does not give me much pleasure. I thrill to coming unexpectedly upon a picture and having the camera with me. If I cared for photographic expeditions, I believe that I would be willing to carry around more pretentious equipment; but, as the case is, I am willing to take my chances with the compact rollfilm. The photographs published with this article were all made with the 2½ x 4¼ roll-film camera, which I believe, will give some idea of the scope of this little instrument.

A MAN without mirth is like a wagon without springs, in which one is caused disagreeably to jolt by every pebble over which it runs.

HENRY WARD BEECHER.

THE COBBLER — JACK A. DOYLE

For What Do We Work?

MOST of us are so "bound to the wheel of things" that we make our regular revolutions without daring to think of the pleasure which might result from suddenly flying off at a tangent.

To quit a certainty for an uncertainty is deemed suicidal. Even when a man has laid by in store sufficient *Aaa* securities to carry him to the terminus without further effort, he will still cling to his "wheel" from force of habit.

It is positively thrilling to read of a man like Edward Bruce, successful banker, who quit a $50,000 a year salary when he was forty-two years old, and did what he really wanted to do—put paint on canvas.

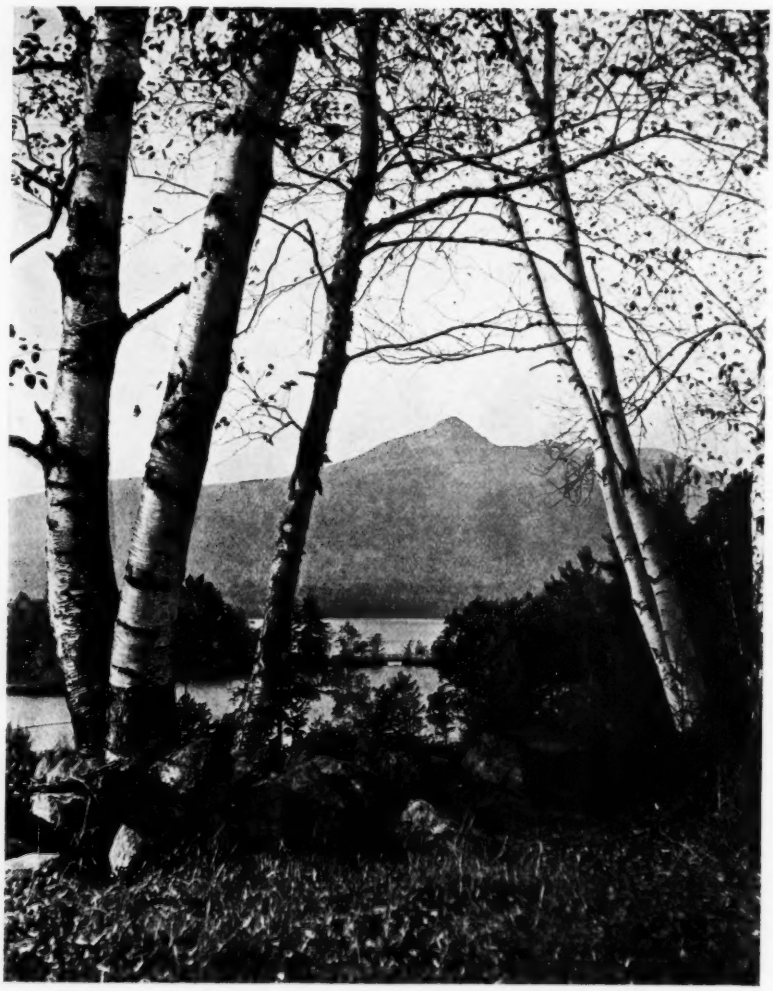
The most remarkable thing about Bruce's personal revolution is the fact that he became a remarkably fine artist. In 1925 and 1927 his exhibitions of paintings startled New York. Every picture was sold.

Last month Bruce gave a one-man show in Paris with twenty-seven of his pictures on display. His work captured the imagination of a large and artistic group of French critics. "Rarely", said the news dispatch, "has a foreigner's showing here been so well attended and so generally and generously praised by those who write of art".

Experts of the great Luxembourg Museum took just five minutes to purchase one of Bruce's paintings. "Bought by the State" was the tag affixed to "A Savoie Farm". Bruce's example recalls the old admonition:

Work for the work's sake—
  Paint or sing or carve
The thing thou lovest,
  Though the body starve.
Work for the work's sake,
  Then and it may be
That all else shall be
  Added unto thee.

The Boston Mail.



MOUNT CHOCORUA
GLADYS L. GILMAN
HONORABLE MENTION—BEGINNERS' COMPETITION

EDITORIAL

The Hills and the Mountains

IN the last three issues we have given considerable space to the subject of mountains and how to photograph them. It so happens that the White Mountains of New Hampshire supplied the material for all three articles. This was not a carefully planned bit of publicity for New Hampshire—much as we love our adopted State. In giving these articles to our readers, we did so with the sincere hope that in reading them our friends might catch something of that message from the hills and mountains which has meant so much to us since leaving the rush and the turmoil of the city. Pictorially, and otherwise, hills and mountains teach many a lesson to those who have the eyes to see and the heart to understand.

When visitors from the Middle West visit New England, they are charmed by the scenery which is made so beautiful by the hills and mountains of which we write. Every bend in the road and every hill surmounted brings the visitor to new scenes, the like of which is not found in any other part of the United States. It is all different, quaint, picturesque, satisfying. There are majesty and grandeur; but for the most part it is rolling country with hills and valleys, meadows, streams, lakes, and tumbling brooks. Yes, we love it all the more because we have been privileged to see beauty in other parts of the world.

There is no finer subject for the camera than the hills and mountains, no matter where they may be situated. The play of light and shade, the rising mist, the sunset glow, the autumnal foliage, and the snow-covered slopes in winter afford a never-ending appeal to the pictorialist. All his technical and artistic skill is needed to catch the mood of the moment and to portray for others the beauty or grandeur before him. Then, too, there is a something that steals over one's heart and makes one a better man or a better woman. This something is intangible, perhaps, but it is nevertheless very real to those who have experienced it. It does us all good to get out of ourselves and to face the fact that we are, after all, but a very small thing in the vastness of a universe.

As we contemplate the hills and mountains from some point of vantage and realise that a thousand years is as but a day in the evolution of nature, and that generations of men have been born, have lived, and then have gone to rest in the shadows of these same hills and mountains, we cannot help wondering whether or not we have accomplished anything worth while in the short space of a human lifetime. This introspection, brought about through photography, leads us to take stock of ourselves and to find out whether our lives show a loss or a profit. It is our conviction that a man or a woman will become a better pictorialist and get much more out of photography as a result of catching something of the message from the hills and the mountains.

The illustration which faces this page is a striking proof that there is always a new and, perhaps, a more beautiful viewpoint from which to make a picture. We have seen hundreds of photographs of Mount Chocorua, the Matterhorn of the White Mountains. We have made many pictures of this peak ourselves. We are very familiar with the very spot where this picture was made. Yet we have never before seen a photograph of this famous mountain made from this spot, nor did we have the eyes to see it when we passed by. It remained for a contributor in our Beginners' Competition to make a picture that was different and original. We claim no perfection for the picture. There are those who will find some artistic flaw in it; but for originality of viewpoint, so far as we know, it stands alone. To us the picture reveals an understanding heart on the part of the maker. She felt the strong appeal of the mountain and she wished to portray this appeal as best she could. The usual points of view did not satisfy—they had been done to death. She searched carefully; and, within a few feet of the commonplace viewpoint, she found a new and a fresher spot from which she made the picture of Chocorua as she wished to portray it.

Yes, the hills and the mountains can teach us many things through photography; and blessed is the person whose ears are not so dulled by the din of modern life that he cannot hear the still, small voice of things which bring relaxation, satisfaction, and peace! The hills and mountains typify those fundamental truths which the centuries have found to be good. Can we afford to ignore the message of the hills?

ADVANCED COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA MAGAZINE, Advanced Competition
Wolfeboro, New Hampshire, U.S.A.

Prizes

First Prize: Value $10.00.
Second Prize: Value $5.00.
Third Prize: Value $3.00.

Honorable Mention: (*a*) Those who win an Honorable Mention Award and are *not regular subscribers* will receive PHOTO-ERA MAGAZINE for six months with the compliments of the publishers.

(*b*) Those who win an Honorable Mention Award and are *already subscribers, or have been subscribers,* will receive an Honorable Mention Certificate. Those who win ten of these certificates and send them to us to be recorded will receive a neat silver cup, suitably engraved. There is no time-limit. However, ten certificates must accompany all requests for the cup.

Prizes may be chosen by the winners, and will be awarded in photographic materials sold by any dealer or manufacturer who advertises in PHOTO-ERA MAGAZINE, or in books. If preferred, the winner of a first prize may have a silver cup, suitably engraved.

No Prize or Honorable Mention pictures are sold, exchanged or the halftone-plates sold without permission, in writing, from the maker of the print. Proceeds of all sales, *excepting halftones,* go to the maker of the picture.

All competition-pictures not returned are used to make up the PHOTO-ERA PICTURE EXHIBIT which is sent to schools, libraries, museums, camera clubs, and to responsible organisations for exhibition-purposes, *free of cost.*

Rules

1. This competition is free and open to photographers of ability and in good standing—amateur or professional.

2. Not more than two subjects may be entered. *Composition, exposure and photo-finishing must be done by the competitor.* Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered into competitions elsewhere, before PHOTO-ERA MAGAZINE awards are announced.

3. Prints on rough or linen-finish surface, and sepias, are not suitable for reproduction, and should be accompanied by smooth prints having the same gradations and detail. Prints may be mounted or unmounted.

4. Each print must bear the maker's name and address, the title of the picture, and the name and month of competition, and should be accompanied by a letter, *sent separately,* giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer, and printing-process. Enclose return-postage. Data-blanks sent at request.

5. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA MAGAZINE, unless for special reasons. This does not prevent the photographer from disposing of other prints from such negatives *after* he shall have received official recognition.

Photo-Era Prize Cup

6. Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces is sent with data.

7. Prints should be carefully packed between two layers of cellular board so cut that the corrugations run at right-angles to each other.

8. Competitors who have won three first prizes within a twelvemonth become ineligible to receive prize cups in this competition for *one* year thereafter.

AWARDS—ADVANCED COMPETITION
Subject—ARCHITECTURAL SUBJECTS
Closed June 30, 1929

First Prize . . . . . Hugo Raeth
Second Prize . . . . . John C. Moddejonge
Third Prize . . . . . Leo Mattersdorf

Honorable Mention: Arthur W. Ambler; Maurice Bernstein; Dr. Frederic W. Burcky; Mary Callaghan; Yock L. Chu; Boris Chudadoff; Charles Clayton, Jr.; Gordon H. Coster; Walter P. Daniels; Mrs. W. F. Eldridge; E. Paul Fleming; Leon Jeanne; W. K. G. Job; U. Stephen Johnson; Elaine H. Kern; Dr. Maximilian Kern; P. J. Magill; Carl J. Mayer; Edward McMahon; Henry A. Meyer; N. J. Nalawalla; Glendora Nichols; M. A. Obremski; Dr. B. J. Ochsner; Alexander Piaget; Godfrey Priester; William H. Pridham; Ida W. Pritchett; Leonard Purin; Mario Lucio Scacheri; Edna Seaton; Kenneth D. Smith; Fred C. Sonnemaker; Hubert Stead; Dr. Max Thorek; George P. Wright

ANCIENT TOWER OF LINDAU
HUGO RAETH
FIRST PRIZE—ARCHITECTURAL SUBJECTS

SYMPHONIC CURVATION JOHN E. MODDEJONGE
SECOND PRIZE—ARCHITECTURAL SUBJECTS

AMONG ARLINGTON'S STATELY ARCHES LEO MATTERSDORF
THIRD PRIZE—ARCHITECTURAL SUBJECTS

SUBJECT FOR NEXT COMPETITION

ADVANCED WORKERS

Subjects for Competition—1929

"My Home." Closed January 31.
"Portraits." Closed February 28.
"Indoor-Genres." Closed March 31.
"Miscellaneous." Closed April 30.
"Artificial Light Photographs." Closed May 31.
"Architectural Subjects." Closed June 30.
"Pictures of Children." Closed July 31.
"Miscellaneous." Closed August 31.
"Outdoor-Genres." Closes September 30.
"Animal Pictures." Closes October 31.
"Water-Scenes." Closes November 30.
"Miscellaneous." Closes December 31.

Animal Pictures

ABOUT a year ago, when we wrote a few lines for this page, we made a number of suggestions based on our experiences in the past. Now, as we write these lines, we base whatever suggestions we make on the present—the reason being that we have been trying to bring up a Belgian police dog puppy in the way he should go. We wish that the chewed-up slippers, rugs, and furniture might lend themselves to pictorial treatment for this competition. Perhaps something of the wrath and then the love which the puppy has aroused might be portrayed fittingly. However, time and patience accomplish wonders, and perhaps some day the Editor's dog may make pictorial material.

Our recent experiences do not suggest any new principles in the photography of animals. Rather, they seem to emphasise the value of those which have appeared on this page and on other pages. The subject must not be frightened or show signs of coercion. In short, the animal picture which has the greatest appeal is the one in which the photographer is skillful or fortunate enough to catch the animal doing something naturally. It may be play, sleep, or attention; but, whatever the mood, let the subject be doing it of his own free will and accord—not because a whip is being flourished behind the camera. We believe in having all animals happy and contented. In the end, kindness accomplishes far more than the whip. This competition is open to pictures of all animals, whether domestic or wild. We are looking forward to a splendid collection of pictures. A. H. BEARDSLEY.

ALL FINISHED CHARLES L. ROGERS

EXAMPLE OF INTERPRETATION

BEGINNERS' COMPETITION

Closing the last day of every month
Address all prints to PHOTO-ERA MAGAZINE, Beginners' Competition
Wolfeboro, New Hampshire, U.S.A.

Prizes

First Prize: Value $7.50.
Second Prize: Value $3.50.

Honorable Mention: (*a*) Those who win an Honorable Mention Award and are *not regular subscribers* will receive PHOTO-ERA MAGAZINE for six months with the compliments of the publishers.

(*b*) Those who win an Honorable Mention Award and are *already subscribers, or have been subscribers,* will receive an Honorable Mention Certificate. Those who win ten of these certificates and send them to us to be recorded, will receive a neat silver-cup, suitably engraved. There is no time-limit. However, ten certificates must accompany all requests for the cup.

Prizes, chosen by the winner, will be awarded in photo-materials, sold by any dealer or manufacturer who advertises in PHOTO-ERA MAGAZINE, or in books.

No Prize or Honorable Mention pictures are sold, exchanged or the half-tone plates sold without permission, in writing, from the maker of the print. Proceeds of all sales, *excepting halftones,* go to the maker of the picture.

Rules

1. This competition is open only to beginners of limited experience with practical camera-activity. *Composition, exposure and photo-finishing must be done by the competitor.*

2. Workers are eligible so long as they have not won a first prize in this competition. Winners of the first prize automatically drop out permanently, but may enter prints in the Advanced Class at any time.

3. Prints eligible are contact-prints and enlargements up to and including 8 x 10 inches.

4. Prints representing no more than *two* different subjects, for any one competition, and printed in any medium except blue-print, may be entered. Prints may be mounted or unmounted, as desired. Subjects which have appeared in other publications are not eligible, nor may duplicate prints be sold, or entered in competitions elsewhere, before PHOTO-ERA MAGAZINE awards are announced.

5. Prints on rough or linen-finish surface, and sepias, are not suitable for reproduction, and should be accompanied by smooth prints having the same gradations.

6. Each print entered must bear the maker's name and address, the title of the picture, and the name and month of competition, and should be accompanied by a letter, *sent separately,* giving full particulars of date, light, plate or film, make, type and focus of lens, stop used, exposure, developer and printing-process. Enclose return-postage in this letter. Data-blanks sent at request.

7. Prints receiving prizes or Honorable Mention become the property of PHOTO-ERA MAGAZINE, unless for special reasons. This does not prevent the photographer from disposing of other prints from such negatives *after* he has received official recognition.

8. Unsuccessful prints will be returned only when return-postage at the rate of one cent for each two ounces or fraction is sent with data.

9. Prints should be carefully packed between two layers of cellular board so cut that the corrugations run at right angles to each other.

PHOTO-ERA MAGAZINE
The American Journal of Photography
Wolfeboro, New Hampshire, U. S. A.

THIS is to certify that an Award of PRIZE
is hereby given to the picture entitled

entered by

in the PHOTO-ERA MAGAZINE Monthly Competition

which closed 192

Editor

PRIZE-WINNERS' CERTIFICATE

PHOTO-ERA MAGAZINE
The American Journal of Photography
Wolfeboro, New Hampshire, U. S. A.

THIS is to certify that an Award of *Honorable Mention*
is hereby given to the picture entitled

entered by

in the PHOTO-ERA MAGAZINE Monthly Competition

which closed 192

Editor

HONORABLE MENTION CERTIFICATE

AWARDS—BEGINNERS' COMPETITION

Subject—MISCELLANEOUS

Closed June 30, 1929

First Prize . . . . . A. W. Clark
Second Prize . . . . . Sorab J. Kharegat

Honorable Mention: Elizabeth E. Culbertson; J. Daniels; A. H. Desker; Gladys L. Gilman; Walter J. Grunst; Dr. Geo. B. Lake; John M. Longyear III; C. P. Martin; Dr. Frank J. Novak, Jr.; Holgen D. Oleen; Alice G. Sherbert; Richard S. Shuman; W. H. Smith; Dorothy Todd; B. J. Westinghouse; T. M. Wurts

First Prize

BEGINNERS' COMPETITION

MISCELLANEOUS

LANDSCAPE — A. W. CLARK

Second Prize

BEGINNERS' COMPETITION

MISCELLANEOUS

FRESH EGGS — SORAB J. KHAREGAT

OUR ILLUSTRATIONS

ERNEST H. WASHBURN

ARTISTS of the camera, as well as those of the brush, have various ideals as to what comprises a picture. To one, it is a combination of beautiful objects in natural landscape; to another, a decorative grouping of man-made objects, such as vases, dishes, or what not. Each has some message which he tries to give to the observer, whether the latter be critical or not. Fred R. Archer favors natural objects in decorative arrangement. At least we assume this, because we suppose that he has submitted something which is typical of his work—something of which he himself is fondest. In his "Woodcutter's Camp" he found a beautiful subject in those trees which the woodcutter left. "The trees which the woodcutter rejected have become the foundation of the picture"—to paraphrase the familiar passage from the Bible. And what beauty he found, indeed, in those tall, slim trees, topped and decorated with beautiful masses of foliage! They seem to aspire to heaven itself, with their pointed tops stretched skywood. And the beautiful cumulus clouds beyond and above still further add to the inspiring thoughts they suggest. How fortunate for us that the woodcutter left these and that the artist discovered them and perpetuated them for our enjoyment! And how sordid, by comparison, the cordwood piles which the chopper produced with his devasting ax. The picture is, truly, a beautiful decorative panel.

Data: Made near Los Angeles, Calif., with Ipsco Reflex camera, 3¼ x 4¼, Struss single lens of 7-inch focus, stop F/8 with K1 screen, in July at 9 A.M. Exposure 1/75 second in bright light, on Polychrome plate; developed in Amidol, cloud printed in from separate negative, made on Polychrome plate, with K-3 filter. Same camera and lens used. Cloud printed first; trees printed next. Enlarged on Artura Carbon Black developed in hydrochinone.

Theodore M. Wurts, in "Photographing the Spirit of the Mountains", has portrayed for us, with pen and camera, the moods of the mountains. His "Chocorua" shows that beautiful peak basking amid the varying sunlight and shadow of a perfect day. Although this viewpoint does not suggest the loftiness which the well-known scene with the lake in the foreground gives, it forms, nevertheless, a pleasing picture.

"Vista" is just a peep between trees such as one might come upon while tramping the mountains. It is regrettable that the distant peaks are not more clearly discernible.

"Afterglow" requires only color to be complete. The composition is well selected and, in imagination, we can see what the artist saw. We vividly recall the beautiful colors in the sky over Chocorua one memorable evening in October, while motoring in the White Mountains. How we longed to perpetuate them with our camera!

"Cloud Fingers" recalls another similar scene which we witnessed at the summit of Mt. Mansfield, in Vermont. A stratum of beautiful clouds struck the mountain-side considerably below the summit, rode up and over the top, and descended to their previous level, then floated away—a wonderful, and, to the writer, novel sight.

Data for this group: Ernemann camera, 3¼ x 4¼, with Goerz Dagor lens of 13.5-cm. focus. Other data are as follows: "Mt. Chocorua", September, 2 P.M., 1 second at F/22, on W. & W. Panchromatic plate, with 5-times screen. Very clear day. "Vista", September, 2 P.M., 1/25-second at F/11, on Eastman rollfilm, no screen. Sky partly overcast. Camera facing sun. "Afterglow", September, 5 P.M., 1/10-second at F/6.8, on Eastman rollfilm. Slightly hazy. "Cloud Fingers", September, 3 P.M., 1/25-second at F/13, on Eastman rollfilm. Clouds were breaking up below, after rainstorm in the morning. Brilliantly clear light when exposure was made.

Joseph L. Kochka, in a most interesting and instructive manner, gives PHOTO-ERA readers the benefit of his experience photographing historic landmarks in the Nation's capital. He has evolved a system of procedure, and his results are the fruit of a carefully worked plan. Although simple, it is highly effective. Attention should be given to the well-chosen viewpoints, good perspective, and absence of objectionable motor-traffic, thus placing emphasis on the subjects.

Number 1 of the group shows the house used by George Washington for his headquarters, while he was surveying in that neighborhood. It is finely lighted, to emphasise the most important features.

No. 2 is a picture of the home of Jefferson Davis at the time when he left to head the cause of the South.

The home of Decatur, No. 3, is somewhat dwarfed in size by the adjacent business structure, but, even so, is a good example of the simplicity which prevailed in a former style of architecture.

No. 4 was a difficult subject, both on account of the fence and "the washing". The tree and distant buildings accentuate its extreme plainness.

Much more attractive is No. 5, and Mr. Kochka was rewarded with an interesting group. His notes inform us that in these buildings lived three famous personages: Sam Houston, first president of Texas, James Madison, one of our national presidents, and Richard Rush.

Although modern, No. 6 is a fine example of city-home architecture. It is simple, but substantial and aristocratic in character. What the Decatur home, No. 3, typified in its time, the Senator Harding House, shown here, expresses in a still more beautiful and forceful manner. It is of special interest, having been the former residence of our late President Harding.

In No. 7 we see again the typical city residence of severe line and sparse embellishment. It housed the famous Dolly Madison, noted beauty of her time and widow of President Madison.

In distinct contrast with the preceding examples is No. 8, the ornate and elegant home of Perry Belmont, where he entertained royalty. The bordering trees and hedge are helpful to the picture.

No. 9, the home of Admiral Dewey's widow, has the real home feeling, with great trees near by, a sizable yard, and climbing vines. It resembles some of the homes of our New England metropolis, Boston,

Data for this entire group are to be found in Mr. Kochka's delightful article. His materials are strictly up-to-date; namely, panchromatic cutfilm, combined with suitable color-screen. His resulting prints show the wisdom of his methods.

Jack A. Doyle shows three clever photographs of

babyhood accompanying his story "Confessions of a Photographer's Model". We can well imagine the patience and skill requisite to obtain these pictures. "Talcum Powder Illustration" is a bit of real babyhood and shows what might happen if baby were turned loose with a box of powder and a powder-puff. The mirror reflection is great! Baby has discovered somebody he never knew before.

"The Crystal Gazer" tells the story, but a lighter tone in the cloth would be better in point of balance. We wonder why a necklace was put on baby's neck or why a turban on his head. Do they add anything of value or interest? The expression on baby's face is wonderful, and so are his hands.

Pictorially considered, "The Immigrant" is the best of the group by Mr. Doyle. The lighting is fine, indeed, creating a beautiful representation of bright sunlight, with perfect values and no undue contrast. The background is of good tone and is free from monotony. Perhaps a little might be trimmed off the top. It is a sweet little picture.

The specimen-photograph illustrating the article by Lina Longaker on the Beach multifocal lens, a new invention by Mr. Howard D. Beach, is a remarkable piece of lens-work. As pointed out by the author, good definition extends from Mrs. Beach's knee to the remote background, where Mr. Beach is in perfect focus. If the vase of flowers had been set back about six inches, it, too, would have been well defined. Mr. Beach's invention seems to have great possibilities. If, for example, lenses of F/4.5 aperture, or larger, can be produced which will give depth of definition equaling F/11, a new vista of possibilities will at once appear to experienced photographers, or, for that matter, to inexperienced as well. All available data are within the article.

Mario L. Scacheri submits "Behind the Ramparts" to the Architectural Competition, and gains honorable mention—very worthily, we think. It is a fine bit of composition. The top might be cut off a little with advantage to the whole. The distribution of light and dark is beautiful, and the play of sunlight very truthful and bright, without chalkiness. We take particular pleasure in the touch of sunlight upon the lantern and bracket; also we delight in the design of both. The artist calls especial attention to the rendering of extreme distance, in conjunction with heavily shaded interior stone-work.

Data: Made in Old France, near Avignon, on a brilliant July afternoon, with a 2¼ x 3¼ Kawee camera, fitted with Carl Zeiss F/3.4 lens. Exposure 1/50 second, at F/4.5, on Agfa filmpack, developed in Rodinal. The enlargement is on Gevaert K-16 bromide paper, developed in Amidol.

Current issues of newspapers and magazines are fairly bristling with all kinds of photographs made from airplanes, most of them by expert professionals or by men in the air-service. We doubt, however, that anything approaching the excellence of the group accompanying Lewis B. Barringer's article has been heretofore produced with a box 2A Brownie camera. This group is a notable demonstration of the possibilities for success among amateurs with the simplest cameras.

Data: No. 1 the Aqua Fria River, Arizona. Note the vegetation on the river-bank. No 2, Picacho Peak, Arizona. No. 3 was a close shave, almost a "scraping acquaintance" with a mountain-peak in the San Tán Mountains, Arizona. No. 4 shows the Colorado River, looking north. Two States are within sight, California on the west, or left, and Arizona on the east bank. No. 5, Volcanic Hills in western Arizona. No. 6 is of unusual interest, portraying mountains, a river, and orange-groves—the latter in southern California. Let's have more shots by "Brownie-aviators"!

Gordon H. Coster's honorable-mention picture, "The Entrance", Mount Royal Station, Baltimore, is an unusually fine piece of work. The architectural appeal is subordinate, however, to the pictorial night-effect, in which respect nothing could be finer. It has the genuine artificial-light qualities, and is another credit to Mr. Coster's account as an all-round camera-expert. The just-sufficient light in the shadows is not usual to see. The porte-cochère and taxies are placed just right. We would tone down the flagstaff.

Data: Ica 2¼ x 3¼ camera, Dominar lens, of 12-cm. focus, at F/4.5. Exposure was 3 minutes, followed by a light flash for shadow detail—about ¼ oz. of Victor slow powder. Eastman filmpack was used and developed in A. B. C. pyro. The enlargement was on Velour Black, Veltex Buff.

"Houses! Houses!! Houses!!!" by Hubert Stead, receives honorable mention. It might have been titled, "Trees, Trees, Trees". For sheer sameness, this is "it"; that is to say—the houses. If a fellow came home with a slight "jag", he would have better luck picking out the right tree than the right door, I should say. The photography is perfect, but the houses—and those hat-rack trees!

Data: Ansco 3A camera; 6-inch, F/6.3 lens, at F/16. Exposure, 1/25-second at 11 A.M., in April sunlight, or Agfa rollfilm; M. Q. developer; P. M. C. No. 9 enlargement.

E. H. Stuerman, like a number of other successful workers, has found that one good type of camera, worked to its utmost capabilities, is able to produce a great variety of "topnotch" photographs. Skill and versatility "bring home the bacon" every time.

"The Smoker" is unique, insofar as it records dense tobacco-smoke in an undispersed condition. As an example of what can be done by one experienced with flashlight work, it is *par excellence*. The smoke above is also well caught. It is seldom that we see smoke actually "frozen" to a standstill. The experiment was highly successful, and the technical qualities are above criticism.

Data: Made with Ansco 1A Speedex camera, Ansco F/6.3 lens, Acme Speedex shutter. Action flashlight in 1/200-second with lens wide open. Victor red label flash-powder, used in action flash-lamp. Agfa rollfilm, fully developed in tank with pyro.

"City Champ" is a challenge to any photographer to do as well. It is on a par with the best in this class of work. Whether intentionally or not, Mr. Stuerman exposed at the exact instant when the motion was at "dead-center"—if we may apply that term of mechanics to sport-action. At the end of the stroke the motion was almost at arrest. Students of the fine points in lawn-tennis playing will be especially pleased to note the correct follow-through of the stroke, grip of hand on racket, and poise of body, the latter due to fine foot-work. The focus is a fine as could be secured with any camera, and the exposure was perfect.

Data: The subject is Ted Drewes, municipal tennis-champion of St. Louis. Made with the same camera lens and shutter as the preceding print. Exposure, 1/300-second at F/6.3, in strong sunlight, on Agfa rollfilm, developed "soft", with pyro in tank.

"Across" hints at Mr. Stuerman's ability in another class of photography and shows him to be well-versed in composition. His judgment of exposure is unquestionable.

Data: Made with 1A Special Kodak and Kodak F/4.5 lens in Kodamatic shutter, in 1/50-second at F/8, with Eastman Pictorial Diffusion disc. Cloudy-

bright day. Eastman rollfilm, developed with Eastman pyro powders in tank.

"The Birdman" is still another case of perfection, absolutely above question. It has every good quality of the best tripod-camera work.

Data: Made with same outfit as the preceding. Exposure, 1/50-second at F/16 in bright sunlight, on Eastman film, developed in tank, with Eastman pyro powders.

"Going Through". A splendid football picture, full of action, which, fortunately, shows the ball in the runner's hand. Good focus again prevails throughout the group of players, and also in the background, and no unpleasant blur is evident, anywhere. Good discretion was exercised in the shape chosen for the final print.

Data: Made with Ansco 1A Speedex, Ansco F/6.3 Anastigmat, Acme shutter. Exposure 1/300 second, at full aperture, on Agfa rollfilm. Very hazy sunlight. Developed in double strength Eastman pyro powders in tank, with Watkins thermometer.

All of the prints in this group were enlarged with Eastman Auto-Focus enlarger on P. M. C. bromide paper and were developed with Eastman standard M. Q. tubes.

"The Cobbler", by Jack A. Doyle, previously appeared in the June, 1928, issue, to which reference is suggested for further data.

"Mt. Chocorua" is probably as often photographed as any peak in the White Mountains, being of remarkable beauty and accessibly situated for photographing. The present picture has every desirable quality, technically and pictorially. The foreground trees and wall form a beautiful frame for the lake and mountain. This is an instance of the well-nigh perfect picture in nature, and Gladys L. Gilman produced a perfect transcript of it with her camera. She richly deserves the honorable mention.

Data: Made at Chocorua, N.H., October, 1 P.M., sunlight. Eastman 3A Special Kodak, anastigmat lens, of 6¾-inch focus, at F/16. Eastman film was used without color-screen. Development was in Eastman tank-powders. The enlargement is on Defender Velour Black, Contrast, developed in M. Q.

Advanced Competition

YEAR by year the appreciation of architectural beauty is continually increasing among the American people. This is due in part to foreign travel, where their education along this line of the fine arts has been developed. The various publications devoted to different branches of this art also are entitled to credit, as are other high-class magazines in the field of travel and exploration, notably the *National Geographic Magazine*. All of these have contributed to the advancement of the knowledge and appreciation of fine architecture, and serious camera-devotees are in the forefront among those persons interested in it. It has furnished them with opportunities for study of light and shade, balance of masses and lines, and laws of perspective, to mention but a few of the many phases of this fascinating art. And they are showing fine discrimination in their selection of subject. PHOTO-ERA MAGAZINE has published scores of first-class examples of the skill of its contributors, and the first-prize winning print, "Ancient Tower of Lindau", ranks with the best. A wonderfully fine subject, Hugo Raeth has photographed it from just the right point to bring in all the supporting masses on both sides, thus forming a pleasing ensemble. He chose his lighting advisedly, selecting conditions when the direction of the sunlight cast the shadows in the best way to bring out strong relief and the feeling of solidity in the tower as well as in the other building. Even a cast shadow from the left is utilised to give support in the immediate foreground. Furthermore, no objects not appropriate, or harmful to the composition, are in sight. To set off the whole and give aërial perspective and life to the setting, beautiful and appropriate cumulus clouds are present to form a fitting background for the alluring picture. I think we shall travel far and not see an architectural picture superior to this masterpiece.

Data: Made in Germany, in August, at 5 P.M., with 9- x 12-cm. Miroflex camera, Zeiss Tessar F/4.5, of 15-cm. focus and Zeiss 2-times color-screen. Exposed 2 seconds at F/8 on Agfa filmpack; developed in Metol-Hydrochinon. Enlarged on Professional Cyko, No. 9.

From ancient Germany to modern America we come for our second award. In "Among Arlington's Stately Arches", Leo Mattersdorf has given us a splendid rendering of a delicate-toned marble colonnade. The pattern of light and shade cast upon the flooring is agreeably distributed, and no violence of perspective is present. The moving figure makes a point of dark, as well as furnishing a gauge of scale for the whole picture. The single touch of sunlight upon the nearest column is a fortunate circumstance, as are the tree-shadows cast in the immediate foreground. Mr. Mattersdorf, no doubt, considered all these points when making the picture.

Data: Made at the Arlington Amphitheater, Arlington, Va., April, 1929, in bright sunlight. A Graflex, 4 x 5, was used, with Kodak Anastigmat F/4.5, of 7½-inch focus. Exposure was 1/25-second at F/16, on Kodak filmpack. Photo-finished by Willoughby, New York.

"Symphonic Curvation", by J. C. Moddejonge, is very well handled. Indeed, it is technical perfection. It also shows appreciation, on the artist's part, of the architect's creation. It features the sweeping line of the balustrade in an extremely effective way, and has a strong feeling of the third dimension, not found in many photographs.

Data: Made in Cleveland, Ohio, in March, with 3A Special Kodak, fitted with B. & L. Zeiss Tessar of 6¾-inch focus. Exposed 7 minutes, at F/16; faint sunlight outside and artificial light indoors; at 10.30 A.M., in April; on Panchromatic film, pyro-developed. Enlarged on Cyko enlarging paper.

Beginners' Competition

A. W. CLARK'S first-award print, "Landscape", is well chosen and well executed in every respect. It has a certain quaint charm which often is present in such subjects and which Mr. Clark recorded skillfully. We feel there should be other pictures near by, featuring the old barn and silo in stronger perspective. The sky is delightfully rendered, showing the fleecy clouds in fine, appropriate masses.

Data: Made in the State of Washington, in May, at 4 P.M., in sunlight, using Eastman filmpack, 3¼ x 4¼, in Super Reflex camera, fitted with Wollensak Velostigmat of 5¼-inch focus. Exposure, 1/15 second, at F/8, with 4-times filter. Developed in pyro and enlarged on P. M. C. bromide paper.

"Fresh Eggs", by Sorab J. Kharegat, wins second award. It is a beautiful little still-life bit, with soft yet brilliant lighting and carefully-thought-out arrangement. The delicate modeling of the eggs is an attractive feature.

Data: Made on Auto-Filter plate at F/8, in 1/25-second. Printed on self-toning paper. Contact print, 2 x 3 inches. It would make a fine enlargement and is being slightly increased in half-toning.

THE EDITOR'S CORNER

The Top of Mt. Washington—But!

STIRRING events crowd each other so closely these days that whatever happened a few weeks ago is almost forgotten by the public in general. However, we can assure our readers that we shall not soon forget our first ascent of Mt. Washington, the loftiest peak in the White Mountains of New Hampshire. It so happened that we received one of the official invitations to be present at the restoration ceremonies of the first mountain-climbing engine in the world, the old "Peppersass". This old engine, sixty years old, was brought back to the spot where it began its remarkable career and proved that it was still able to move under its own power. The story of the exciting events of the afternoon and night of July 20, 1929, on and about Mt. Washington, has already been told in the press.

We shall always remember it as our first ascent of the mountain and that it was a rather unusual way in which to celebrate our birthday. We shall also remember the five or more hours' wait on the trestle with the train at an angle of nearly forty-five degrees, the sinking sun among the peaks, the chilly night wind above timber line, the absence of any lights in the train, the rescue trains from the summit, the transfer of passengers—some injured by falls among the jagged rocks, and finally the arrival back at the Summit House to become one more of nearly three hundred marooned guests. Then the problem of getting off the mountain to report for military duty at Fort McKinley, Portland, Maine, became acute. It was 12.30 A.M. of the day we were to report. It was eight miles to the base at Glen House and forty miles to Bretton Woods, where our automobile was parked; nearly eighty miles to Wolfeboro, and about sixty to Portland, Maine.

Thanks to one of the military aides of Governor Tobey of New Hampshire, we were given priority in squeezing into one of the specially geared cars which ascend and descend the mountain over the famous carriage road. It was cold, and the moonlight created weird and awesome shapes among the rocks and across the peaks as we made turns which seemed to spell certain disaster. At Glen House, auto-busses were waiting and so were refreshments. At about 1.30 A.M. we were speeding toward Bretton Woods under a special convoy of State police. We arrived at the Mount Washington House, Bretton Woods, about 3 A.M. and found our car. Then, just about dawn, for the third time within a few hours, we turned down through Crawford Notch, homeward bound at last. Those who have never seen the White Mountain region at dawn on a beautiful summer morning have something in store for them. The rising mists, the coral-like tints of the morning sun on the peaks, and the song of birds will ever remain with us in memory. We reached Wolfeboro about 6 A.M., hurried into our uniform, placed our equipment aboard the car, and soon were speeding on toward Portland, Maine. We reported for duty at Fort McKinley at 2 P.M., but were excused from any duty until we had had a good dinner and a few hours of much needed sleep.

Yes, we have been to the top of Mt. Washington, up one side and down the other. Thousands have done this before us; but we venture to believe that those who went through the "Peppersass" experience on the night of July 20, 1929, may cherish an altogether different recollection of the first ascent of the mountain. Let us add that Governor Tobey of New Hampshire and President Hannauer of the Boston and Maine Railroad did everything humanly possible that night to bring order out of unexpected tragedy, and not enough praise can be given to them and the hundreds of faithful employees of State and railroad who met a desperate situation with splendid self-sacrifice and service.

A. H. Blackinton Visits Wolfeboro

PROBABLY there are few better known press-photographers or staff correspondents in New England or the United States than Alton Hall Blackinton, formerly of the *Boston Herald* staff, and now conducting his own news gathering and photographing organization. We were at home about supper time Sunday evening, August 4, when the doorbell rang and there stood Mr. Blackinton. He and his assistant, Mr. George E. Tufts, were on their way to Boston from an extended trip through New Hampshire in search of the pictorial, the new, and the strange. After some hesitation, due to his appearance after so many days on the road, he accepted our invitation to share whatever Mrs. Beardsley could find in the cupboard and to stay overnight. However, he insisted that to square accounts he wished to give his lecture, "The Romance of News Gathering", for our pleasure and that of as many friends as we could muster on such short notice. The audience which finally arrived to hear Mr. Blackinton was well qualified to appreciate both the lecture and the lantern slides. The result was a unanimous vote that Mr. Blackinton must be asked to return and give his lecture under the auspices of the Wolfeboro Chamber of Commerce, Rotary Club, or Woman's Club.

We have heard many a lecture; but none has appealed to us more than "The Romance of News Gathering". We know that any organization, photographic or otherwise, will thoroughly enjoy and profit by Mr. Blackinton's excellent entertainment. After the lecture a group remained to talk, and so interested did we become in the various subjects which were brought up by members of the group that the clock struck 2 A.M. before the household settled down for the night. Unfortunately, our guests were obliged to leave at 5 A.M.; but the little we did see of them will always be a very pleasant memory.

The Race Is On Again!

BEGINNING with the September Advanced and Beginners' Competitions, the race for the PHOTO-ERA TROPHY CUP is on for the fifth year. The Photographic Club of Baltimore are now the possessors of the cup and have announced that they have no intention to relinquish their hold upon it. Therefore, it is apparent that other camera clubs which have any thought of winning the cup away will have to begin at once to marshal their forces for the fray. Eleven clubs participated in 1928–29, and we hope that a larger number will take active part in 1929–30.

THE PICTORIAL EDUCATOR

ARTHUR L. MARBLE

Communications intended for the editor of this department should be addressed to him, at Utah State Agricultural College, College Hill, Logan, Utah.

PROF. BEN D. WOOD

What Is the Potential Value of the Teaching Film?

(Condensed from *The Nation's Schools*, March, 1929, issue, Vol. III, No. 3, by permission of the author)

Prof. BEN D. WOOD, *Teachers College, Columbia University*

THE recent extensive experimentation with teaching films, involving nearly 11,000 children and nearly two hundred teachers, was carried forward under the joint direction of Prof. Frank N. Freeman, University of Chicago, and myself, with the generous co-operation of a large number of school men and women all over the country. The experiment was financed by George Eastman.

The purpose of this educational adventure was to learn what contributions twenty teaching films, used as a regular and integral part of classroom work, might make to the ordinary objectives of good classroom teaching. The possibility of unique contributions was recognised at the outset, but the main object was to determine the nature and extent of the influence of the films on the attainment of the usually accepted goals of classroom practice and to detect and measure any losses that might occur as a result of giving classroom time to the viewing of films.

IMPROVING THE QUALITY OF LEARNING

It has long been recognised that motion pictures make definite and unique contributions to education, such as, for example, presenting precise ideas of dynamic relations, motion studies, and, in general, imparting a sense of the concrete existence of places and objects that otherwise remain for most children largely verbalisms or flat and lifeless still pictures. No one has seriously questioned the value of such contributions; but thus far no convincing evidence has been produced to show that significant losses do not occur or that such additions to the pupils' school experience are worth the cost in time and money, considering the present state of the schools and their relations, or possible relations, to extramural motion picture exhibitions and other competing pedagogical devices.

It seems reasonable to surmise that in addition to the contributions mentioned above, classroom films may also increase the rate and improve the quality of learning; arouse stronger and more fertile interests; stimulate more extensive, more appropriate, and more satisfying use of books and libraries; increase the quantity, quality, and meaningfulness of projects undertaken on the pupil's own initiative; improve the English composition of children, and in general improve their thinking habits. The films may be supposed to accomplish these results by giving children wider opportunities to start their thinking, with a greater wealth of concrete experience than can be gained by any other means now available to the schools.

MAINTAINING AN OPEN MIND

But scientists and responsible school administrators alike are skeptical of even the most plausible surmises, and are rightly maintaining an open mind on the value of motion pictures and on the expediency of adapting and using them in the classroom in a comprehensive way. Their attitude seems to be that, granting both the value and the certainty of some unique contributions, the general adoption of classroom films cannot be recommended to school boards until it has been shown that their use entails no loss in reaching the ordinary goals of education but rather promotes their attainment to a significant degree, and that films can be made an integral and administratively feasible part of the regular school program, enhancing the effectiveness of the customary pedagogical devices and procedures.

We have viewed the films not as a substitute for present instrumentalities of the schools, nor as a means to revolutionise the aims of education, but as an addition to the present pedagogical devices of the schools. It is for this reason that in this investigation we have been primarily concerned with the results of tests such as were ordinarily used in the classroom; with observations on the interest and self-activity of pupils in the classroom; with the number and character of the projects undertaken and completed by the pupils; with the amount of reading done by the pupils as manifested by their recitations in the classroom, their written projects, and their use of the school library, and with the observations and reports of the teachers and school officers who were in daily and immediate contact with the classes that participated in the experiment.

In studying the merits of a new pedagogical device, it is essential to compare the progress of many classes that have had its benefit in a fairly large but well-defined area of instruction, for a considerable period of time, with the progress of similar classes that have devoted the same amount of time, under the same conditions, to the same area of instruction, without the aid of the device in question. The validity of such

a comparison depends, among other things, upon the extent to which equality and normality of teaching and learning ability and conditions in the two groups of classes compared have been achieved; upon the extent to which differences can be measured and fair allowance made for them; upon the reliability and validity of the measurements and observations used, and upon the extent to which chance factors have been eliminated or accounted for.

11,000 Children in Experiment

Nearly 11,000 children, in more than three hundred geography and general science classes, taught by nearly two hundred teachers, in grades four to nine inclusive, distributed in twelve cities, participated in this experiment. Of the 11,000 children, there were approximately 7,500 in the geography classes and 3,500 in general science classes. The geography and general science pupils were about equally divided between the experimental and control groups. The experimental classes are those that had the benefit of the films, and the control classes are those that did not use the films. Throughout the remainder of this report, the experimental classes are referred to as X groups and the control classes as C groups. With three or four exceptions, the X and C classes were in different school buildings in each city, and there was practically no contact between X and C pupils or teachers during the experiment.

The experiment began about the first week in February, 1928, and continued until about the middle of May, 1928. The twelve cities co-operating in this enterprise were distributed widely over the United States: Newton, Mass., Rochester, N.Y., New York City, Winston Salem, N.C., and Atlanta, Ga., in the East; Detroit, Chicago, Lincoln, Neb., and Kansas City, Mo., in the Central States; Denver, Colo., in the Mountain States; and Oakland, Calif., and San Diego, Calif., on the Pacific Coast.

The areas of instruction included ten topics in general science and ten topics in geography. They were selected as being among the most commonly accepted topics in general science and geography. A list of the topics in each field in the order in which they were presented is given below:

Geography

1. New England Fisheries—Cod
2. Wisconsin Dairies
3. Wheat
4. Wheat to Bread
5. Cattle
6. Corn
7. Cotton
8. Irrigation
9. Bituminous Coal
10. Iron Ore to Pig Iron

General Science

1. Hot-Air Heating
2. Atmospheric Pressure
3. Compressed Air
4. Water Cycle
5. Water Supply
6. Purifying Water
7. Limestone and Marble
8. Sand and Clay
9. Reforestation
10. Planting and Care of Trees

As indicated above, the validity of comparisons of the X and C classes depends upon the extent to which the courses of study involved are adequately defined and delimited, and upon the extent to which pupils and teachers in the X and C groups stay within the areas of instruction agreed upon. Obviously, it would not have done simply to list the ten general topics in general science and in geography. Two twelve-week courses might easily be organised around these topics without having any great community of details or of treatment. In order, therefore, to delimit areas of instruction concretely enough to form the basis of valid tests, and to ensure that all pupils in both groups would spend the twelve weeks allotted to the experiment on the same specific body of study materials, detailed study guides were prepared on each of the topics in general science and in geography. A copy of these study guides was given to each child in the X and C groups. The study guides were all uniform in plan of organisation and included from four to six subheads with second-order and third-order items under each subhead, together with notes giving in highly compact form interesting and arresting information about various phases of the general topic. The study guides averaged about five to seven pages on each topic, so that in general science the pupils had as a syllabus for this course a booklet of sixty pages, while the geography pupils had a syllabus of sixty-nine pages.

Just before the experiment began, each of the twelve cities, excepting the two farthest west, were visited by one or the other of the directors, and conferences were held with the X teachers and with the C teachers, in separate groups, or with the supervisors and officers in charge of the experiment. The general plan of the experiment was explained in detail, and particular stress was laid upon the necessity for both X and C teachers staying within the limits described by the study guides. They were also urged to keep to the time schedule with meticulous care. The C teachers were not only allowed but were urged to use all pedagogical devices that they desired to use, save only motion pictures. As we shall see later, the C teachers availed themselves extensively of this provision by using all manner of maps, charts, pictures, diagrams, and lantern slides.

Classroom Exercises Carried on Normally

The teachers in both groups were urged to carry on the classroom exercises in a normal and natural way and insofar as possible to allow the children to maintain a normal attitude toward this part of their school experience. It seemed particularly desirable to avoid any sense of excessive rivalry between the X and C groups, and it was with this object in view that the teachers were asked to maintain a normal attitude in the classroom, treating the course of study prescribed for this experiment just as though it were prescribed by local school authorities. This injunction largely failed of its purpose in several of the cities because a feeling of intense rivalry developed almost immediately among the C teachers and constituted a real handicap to the X groups.

As an aid to the X teachers in adjusting classroom procedure to the exigencies of an unfamiliar classroom instrument, teachers' guides were constructed for the exclusive use of the X teachers. These guides included only the major subheads and notes on arresting bits of information from the study guides. In addition they included brief directions to the X teachers as to how and when to use the films.

In addition to the teachers' guides, a brief memorandum, entitled "General Guide for Experimental

Teachers", was sent to each X teacher, explaining the purpose of the experiment in general terms and giving more or less explicit directions as to the use of the teachers' guides and the films. These directions relative to the use of the films were the only aids given that were not also given to the C teachers.

It cannot be too strongly emphasised that this experiment was not concerned with educational films in general, but with a particular set of ten films in general science and a particular set of ten films in geography. The indications and conclusions of this experiment can be carried over to the general run of educational films only insofar as such films and their use are similar to those used in this investigation.

The films were built to conform to scenarios that had been written with definite pedagogical goals in view. No material was included in these films merely because it happened to be available from the commercial or other sources of film material. The films were designed to provoke questions in the minds of the pupils. They told no story and presented no drama other than that which inheres in motion pictures of concrete things, places, and actions. They were not entertainment films, though all who viewed them found them exceedingly interesting. They included elements sufficient to enable the pupil to answer such questions as they prompted. The educational value of such questions might easily be impaired or destroyed by putting authoritative answers to them in the films, either in subtitles, in pictures, or in diagrams. But in consonance with the wise warning of Professor Kilpatrick against such "vaccination of children against education", the editors of the films have carefully avoided giving *ex cathedra* answers to the questions provoked by the films. It was partly for this reason that the titles were reduced to a minimum. In these films the effort was made to avoid pedagogical tasks which can be better accomplished by other media of instruction.

An Instrument for the Teacher

The fact that these films tell no stories and depict no dramatic sequences similar to those of the entertainment films is of such pedagogical importance as to require special emphasis, because it indicates, more clearly than any other single feature of these films, the place the present experimenters consider motion pictures ought to have in the classroom. In the theater film we have a self-contained and complete unit, having a definite beginning and a still more definite and satisfying ending, which tends to discourage further thought about the matter on the part of the audience. The classroom film with which we are here concerned is not a self-contained unit carrying its own story, which the pupil is to receive passively. Least of all is it a story that has a definite and satisfying end. On the contrary, it is an instrument that the teacher is to use, not a substitute for the teacher, for textbooks, for maps, for drawings, or for other time-honored instrumentalities of the classroom. Far from putting an end to the interest of the pupil, it is designed to provoke questions rather than answer them and is intended to leave the pupil at the end of the film with so many insistent questions in his mind and with so much concrete and detailed content that the end of the picture will be, in effect, the beginning of increasingly satisfying effort on his part to interpret his own experiences and answer his own questions.

Teachers Taught to Operate the Machines

No characterisation of the films used in this experiment would be complete without observing that they are on safety stock of the sixteen-millimeter size film. The machines to be used in the experiment were installed in the various classrooms of the X teachers in twelve cities, from one to three weeks before the experiment actually started. An expert operator met the X teachers in each of the cities and gave them detailed instructions as to the mechanical structure and method of operating the machine. The period of such instruction for each group was perhaps two hours. Conveniently arranged window shades for darkening the X teachers' classrooms were installed.

The written tests used in measuring the relative attainment of the X and C groups in this experiment were based strictly upon the areas of learning delimited by the study guides, and were parallel for the two courses of study. The tests in geography and general science were of two general types. The first type, hereafter called comprehensive tests, included three sub-tests, which are hereafter called Tests C 1, C 2, and C 3. Test C 1 consisted of one hundred true-false statements and was given only at the beginning of the experiment. Test C 2 consisted of one hundred multiple choice questions, given both at the beginning and at the end of the experiment. Test C 3 included approximately one hundred two-answer questions and was given only at the end of the experiment.

The main purpose of Test C 2, which was given both at the beginning and at the end of the experiment, was to measure the relative gains of the experimental and control pupils. The questions in this test emphasised ability to interpret experiences and to make inference and judgments. Test C 3, given only at the end, was designed to measure the ability of the pupils to recall concrete objects and processes, which were included in the study guides and were also pictured in the films. The second type of test used, hereafter called topical tests, was a modified form of the traditional essay examination which is subjectively scored. The topical tests were given approximately every two weeks during the experiment. Each of these tests included about eighteen questions and covered the subject matter of two topics.

The comprehensive and topical tests constituted two independent series of tests, the first having been in charge of one of the directors in New York City and the second in charge of the other director in Chicago. The questions in each part of both series of tests were about equally divided between the ten topics in each course of study.

Teachers Find Films Effective

A tabulation of the teachers' answers to each of the ten questions of the questionnaire shows that the teachers are overwhelmingly convinced that the teaching films were highly effective in arousing and maintaining interest; in increasing the quantity and quality of the reading, project work, classroom discussion, and writing; in promoting a more thorough correlation of the materials on the part of pupils; in increasing the richness, accuracy, and meaningfulness of their experience; in facilitating the work of the teachers in organising the lesson materials, and in making teaching more pleasant and the self-activity of the teachers greater.

Several of the answers were classified by us as adverse, but analysis of the answers shows that in no case are they unfavorable to the use of motion-picture films in the schools. The adverse answers are almost without exception objections to the particular organisation of the film instruction prescribed by the directors for the particular purposes of this experiment.

A considerable number of answers were classified as favorable, but were qualified because, while endorsing

the use of classroom films, they include complaints that the time allowance for the use of the films was not adequate for exploiting fully the ardent interest aroused in the pupils by the films.

Film Classes Superior in Achievement

A careful analysis of the X and C teachers' reports made after giving instruction on each topic indicates (*a*) that the general level of teaching ability and practice was about equal in the X and C classes; (*b*) that the C teachers exerted themselves energetically and put constant pressure on their pupils to make a good showing on the tests; (*c*) that the C teachers gave their classes extensive practice with the types of tests used in this investigation; (*d*) that the C teachers used visual aids other than motion pictures extensively; and (*e*) that in several instances, notably in general science classes, the X teachers leaned too heavily upon the films.

An extensive collection of exhibits of the project work of the X and C pupils in all twelve of the co-operating cities shows that much excellent work of this sort was done by both X and C classes. The collection does not afford a basis for comparing X and C pupils either as to quantity or quality of projects completed, but from other sources we infer that the X pupils were slightly superior in project work.

Thus all the evidence, whether derived from tests or from the judgments and reports of teachers or from our own observations, indicates that, in spite of measurable handicaps, the film classes were superior in their achievement and attitudes to the non-film classes.

This investigation has in no way been more fruitful than in suggesting promising leads for further research. Indeed, the field for research in classroom films is almost limitless, and we can do little more than suggest some of the more insistent problems that are faced by the makers and users of classroom films. Two classes of problems will be mentioned. First, let us consider the large group of semi-technical and pedagogical problems that should receive the early attention of research scholars:

1. The pedagogical structure of a film or of a series of films and the organisation of the film into the lesson plans of the course of study and into the classroom exercise.
2. Length, frequency, and character of subtitles in various types of films and for children of various ages and grades.
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An important administrative problem is already looming large before many school superintendents and principals and deserves immediate attention—namely, the organisation, administration, housing, and care of the film library of the individual school and of the city school system.

The Classroom Film—A Social Agency

The present investigation has been concerned with the contribution of twenty films to the ordinary outcomes of classroom exercises as these are usually measured, observed, and estimated. We believe that the teaching film experiment has uncovered only a small part of the film contributions, but that the demonstrated contributions amply justify the extensive use of films in our schools. It seems likely that most of the research in the field of the classroom film that may be undertaken in the next few years will be devoted largely to the more or less immediate classroom products and pedagogical problems created by such films. Such research is much needed, and will make contributions of indispensable value.

But the classroom film is or will be a social agency whose power will be felt far beyond the walls of the classroom and whose effects will be far too variegated and subtle to be measured or described by the types of tests, examinations, and observations currently used in the classroom. The potential power of the classroom film, as a part of the daily experience of the elementary and secondary-school population, is amply indicated by the fact that the entertainment film has left no element in our social or individual life untouched. The theater film, specifically designed to entertain people while within the walls of the theater, has revolutionised our ideas, manners, customs, tastes, and morals. It makes and unmakes overnight the vocabulary of vast sections of our population, and it instituted a gigantic world-wide system of adult education long before the phrase was current in learned circles. The educator may properly inquire first about the immediate classroom contributions of films, but he will err if he bases his judgment solely on the evidence of such contributions. In the classroom film we envisage an agency whose potentialities are easily underestimated.

[Read before Section Q of the American Association for the Advancement of Science.]

Visual Instruction in DeVry Summer School

Noteworthy in several respects were the plans for the DeVry Summer School of Visual Education, which convened for the fourth time in Chicago, beginning the week of July 8. There was a lecture and exhibition of television by Mr. Schoenberg, the famous radio expert of WCFL Broadcasting Studio, and the making and use of talking films for the amateur was explained. Other features of the session were daily conferences of church and school workers, courses in the operation of motion-picture cameras and projection equipment, and personally conducted tours to visual education centers in Chicago and vicinity. The school this year convened in the new Medical Building of Northwestern University on McClinoch Campus, Chicago.

According to Mr. A. P. Hollis, organiser of the school three years ago, who presided at the meetings, a few of the educators who participated were: B. A. Aughinbaugh, director of Visual Instruction, State Department of Education, Columbus, Ohio; J. J. Weber, Ph.D., author and lecturer on visual education; Amelia Meissner, Curator of the St. Louis Public Schools; Dwight Furness, secretary of the Chicago Cinema Club and director of the Department of Slides in the Methodist Board of Education, Chicago; C. F. Chapman, former staff cameraman for Pathé and Paramount; T. G. Pasco of DeVry School Films; F. R. Patterson, chairman of A. L. A. Committee on Visual Aids and the Library.

Tuition in the summer school was free, the entire expense of the project being borne by DeVry School Films, Inc. This department joins in wishing a full measure of success to the DeVry Summer School.

THE MONTH IN APPLIED PHOTOGRAPHY

C. B. NEBLETTE, A.R.P.S.
Division of Photography, A.M., College of Texas

Third Dimension in Colored "Talkies"?

(*Continued from August issue*)

GREAT as have been the advances in motion pictures, "talkies", and color pictures, there have adhered to them all certain defects which Mr. Hartley promises to correct at once. In the first place, he offers to produce pictures in true colors, without the use of colors; he promises to produce the third dimension on the screen, also in colors; he promises to correct the angular distortions on the screen growing out of the fact that all parts of the screen are not the same distance from the projector; he promises correction of the light-and-dark areas on the screen, and offers to give proper transmission of sound with the colored pictures. So simple are the processes, he says, that his colored talking films can be produced as cheaply as the ordinary black-and-white "talkies". The extra cost incidental to the projection of these pictures will be in the installation of a new type of screen.

To begin where the picture begins, a word about the camera may be in order. Mr. Hartley will use the ordinary camera. He will make pictures in the ordinary way, with a single exception. Affixed in front of the lens there will be a revolving filter of light. As it revolves, it will carry a series of colored glass segments in front of the lens in such a way that they build the true color-waves into the negative. If the basic colors of blue, yellow, and red are used, they cover the whole range of the spectrum, for they are the base for all the colors in the rainbow and help to register the image in the true light. Yet the negative gets no visible colors; it gets the imprint of the various wave-lengths that represent the colors and the tints of the object photographed, and it transmits these color wave-lengths to the print, or positive, taken from it. On the same film there is registered also the sound of the object photographed, in the same way that sound is registered on the ordinary film for the black-and-white moving picture. And the sound will be as perfect as the colors, according to the inventor.

Thrown upon the ordinary white screen, the picture in this film would not register, for the reason that that kind of screen lacks the properties of proper absorption and reflection. Hence Mr. Hartley has invented a new type of screen to be operated in conjunction with his pictures. He felt certain of the scientific accuracy of his photographic process—that he had registered the colors correctly—and the next problem was to find the medium upon which the picture could be shown. For this purpose the white screen was useless.

A key to the next step was sought in the known fact that each color has its own wave-length, or light-wave. This suggested the possibility that a screen might be so constructed that it would select and arrange the picture-waves, as they were shot out by the projector, after the fashion of the radio set which selects from the air the waves to which it is attuned and reassembles them into coherent speech. The same process of selectivity takes place over the "carrier current" system of telephony, in which several conversations may be carried on at the same time over a single wire, and there is no confusion because each receiving station picks up the message for which it is adjusted and lets all others go by undisturbed. What Mr. Hartley wanted was a screen that would be in full sympathetic accord with the film, so as to translate it accurately. No screen of a single color could do it. The whole spectrum was needed on the screen as well as in the camera if the former was to reflect what the latter had "caught"; so the screen would have to be a composite of the three primary colors—red, yellow, and blue.

Such a screen Mr. Hartley has obtained by the use of four screens instead of one. They are of metal and are perforated. The first screen has large perforations, like a coarse mosquito netting, so as to let through about seventy-five per cent. of the light from the projector. The second screen, perhaps an inch back, has a smaller mesh than the first and intercepts some of the light; the third screen has still smaller mesh and intercepts its share of the light. Immediately back of the three there is a fourth screen of yet smaller mesh. About eighty-eight per cent. of the light-waves from the projector are absorbed and reflected by this quadruple screen, the remaining twelve per cent. being lost in the rear of the stage.

Were they all of the same color the four screens would not reproduce the picture; but they are painted the three primary colors to correspond to the arrangement of the primary colors in the filter used in the camera. One of the screens is blue, the next is yellow, and the third is red; and as they all are transparent, by virtue of being perforated, they present a field of composite colors. The fourth screen, in the rear, is painted an azure blue, to introduce the element of daylight, or sky. Thus arranged, the quadruple screen is ready to receive the picture. It is capable of recording all the colors and tints of nature. The blue will pick up the blue rays from the projector, the red will take the red waves and the yellow will find its own as the picture comes, and they will reflect these colors and shades as accurately as the camera picked them up through the filter. The sky-blue screen in the rear will soften the tone with its influence, as it shines through the holes in the other screens.

"All artificial light has a yellow tinge," said Mr. Hartley, "and it is one of the unfortunate peculiarities that we cannot produce artificial light to contain the quality of daylight. Such artificial light is deficient in the blue rays, allowing the yellow rays to predominate, giving a yellow hue to everything. One of the most important features of my invention is the neutralising of the yellow tinge, which is accomplished by coloring the white areas of the fourth screen a pale sky-blue. Thus, when the yellow-tinged light from the projector is thrown onto the screen, the sky-blue of the screen provides the blue-ray deficiency, with the result that all the light-areas of the picture appear in a soft natural light, equivalent to daylight. Thus, the familiar white or silver screen gives place to one with a pale blue-sky background."

On this set of screens, the figures will stand out in bold relief. They will have depth as well as height and width, for there is depth to the quadruple screen,

and the production of the third dimension is thus at last accomplished. There is room for shades and shadows. The desired light-and-dark areas in the field are properly reproduced, because the screen itself responds to those impressions.

Another problem that solves itself, if this invention stands the rigid test of the picture producer and comes through as announced, is that of colored "talkies". It will be just as easy, and just as cheap, to make the colored movies talk as to endow the black-and-white pictures with such proclivities; for the sounds can be registered on the margin of the film, as they are now, and there will be no subsequent treatment to disturb the sound-waves. If colors are to be applied to the film by any subsequent known process, it affects the sound-waves on the margin; but with Mr. Hartley's method, the colors record their wave-lengths on the negative, through the Hartley color-filter in the camera, and neither the negative nor the positive requires any additional treatment. The negative will carry from the first exposure the image, the colors, and the speech in such form that they all can be reproduced on the new type of screen.

Instead of setting up an impediment against sound-transmission, as the white curtain does, this quadruple metal screen is expected to facilitate the speech and the music in the "talkies". It will have the metallic ring and will amplify the voice as it passes from the smaller, to the larger perforations in the screens.

Watson Hartley, the inventor, lives at the Hotel Touraine, Boston. He travels frequently between this country and England, which is his native home, and he has patented his new devices in England—BERNARD PETERSON, in *The Boston Evening Transcript*.

Syracuse University to Teach Aërial Photography

THROUGH an appropriation of $30,000 from the Daniel Guggenheim Fund for the Promotion of Aëronautics, Syracuse University has been able to add to its courses in surveying a course in aërial photographic survey. The grant will provide the laboratories and equipment necessary for conducting the course.

The program calls for eight courses covering not only the technique of aërial photography and map-making, but the economic and business phases of aërial mapping the well. A general course in aërial surveying is to be required of all civil engineering students; the advanced courses are for those who desire to specialise in aërial map-making.

An advisory committee of men familiar with aërial survey from the standpoint of technical methods as well as business has been appointed to assist the faculty in the proper organisation of the courses. It is hoped that all necessary arrangements will be perfected in time to permit at least some of the courses to be given during the fall semester of this year.

The Guggenheim Fund, since its foundation in 1926, has aided a number of universities to establish and maintain courses in aëronautics; this, however, is the first grant for aërial photography, and the courses will represent the first college courses in the subject in any American university.

Development of Cancer Cells Photographed

IT is only within the last few years that motion-picture photomicrography has reached the stage where it possesses decided practical value to workers in bacteriology, pathology, and the biological sciences generally. The earlier workers were handicapped by the lack of the proper equipment and were forced to design and construct their own equipment. This drawback has now been overcome and there are available commercially a number of apparatuses for motion-picture photomicrography. With the appearance of complete apparatus on the open market, interest in the subject has spread rapidly and a survey of the research laboratories and universities would show a surprisingly large number equipped for Kinéphotomicrography.

According to *Hygeia*, Dr. R. G. Canti, a London physician, has recently succeeded in photographing the growth of cancer cells. The exposures were made at intervals of from three to sixty seconds; so that when the film is projected at the normal speed, the rate of growth is greatly accelerated and phases which take place so slowly that the details of development are obscured can be speeded up and the progressive changes can be observed. The cells of cancer behave very differently from other cells, and it is hoped that, by means of motion-pictures, the peculiarities of their growth may be partially explained.

London "Daily Express" Installs Picture Transmission

THE Bell System method of picture transmission over telephone lines has now been put into commercial operation in England. The picture-transmission equipment installed by the British branch of the Western Electric Company uses the lines of the British Post Office between Glasgow, Manchester, and London, and has been installed for the publishers of the *Daily Express*. This is a London newspaper with special editions at Glasgow and Manchester. Most of the editorial work, the special features, and advertising layout is done at the London office, and the copy is transmitted to Manchester and Glasgow by telegraph.

The use of the Bell System of picture transmission will enable newspictures to be transmitted at the same time that the copy is being sent; so that the Manchester and Glasgow editions may be made exact duplicates of the London edition. Heretofore the pictures have appeared in later editions owing to delays in transmission. (*Bell Record.*)

Dartmouth Produces

PLANS for the extensive use of amateur movies have been made by Dartmouth College. Two newsreleases, each running 400 feet, fifteen-millimeter, entitled *Dartmouth College News*, filmed by Sidney C. Hayward, assistant to the president, and Charles G. Engstrom, have been circulated among the various alumni groups of the country. The newsreels are released periodically, and a regular film service has been built up for subscribing graduate associations. The first issue of *Dartmouth College News* featured shots of President Ernest M. Hopkins, close-ups of the season's football games, the dedication of new college buildings, hockey, ski, and snowshoe races.

Assisted by the Dartmouth Players, the college dramatic society, the amateur group plans to produce a scenario film, enacted by students, which will depict a year's activities in the life of an undergraduate at Dartmouth. Upon the basis of this experience, an undergraduate unit will be formed for the regular production of amateur photoplays.

Movie-Makers' Magazine.

The Dear Departed

OLD LADY (speaking of her late husband): "I mind the last time we was out together, and he turned around and sez, so kindlike: 'Come along, old draggletail', he sez".

Contact.

Teachers", was sent to each X teacher, explaining the purpose of the experiment in general terms and giving more or less explicit directions as to the use of the teachers' guides and the films. These directions relative to the use of the films were the only aids given that were not also given to the C teachers.

It cannot be too strongly emphasised that this experiment was not concerned with educational films in general, but with a particular set of ten films in general science and a particular set of ten films in geography. The indications and conclusions of this experiment can be carried over to the general run of educational films only insofar as such films and their use are similar to those used in this investigation.

The films were built to conform to scenarios that had been written with definite pedagogical goals in view. No material was included in these films merely because it happened to be available from the commercial or other sources of film material. The films were designed to provoke questions in the minds of the pupils. They told no story and presented no drama other than that which inheres in motion pictures of concrete things, places, and actions. They were not entertainment films, though all who viewed them found them exceedingly interesting. They included elements sufficient to enable the pupil to answer such questions as they prompted. The educational value of such questions might easily be impaired or destroyed by putting authoritative answers to them in the films, either in subtitles, in pictures, or in diagrams. But in consonance with the wise warning of Professor Kilpatrick against such "vaccination of children against education", the editors of the films have carefully avoided giving *ex cathedra* answers to the questions provoked by the films. It was partly for this reason that the titles were reduced to a minimum. In these films the effort was made to avoid pedagogical tasks which can be better accomplished by other media of instruction.

An Instrument for the Teacher

The fact that these films tell no stories and depict no dramatic sequences similar to those of the entertainment films is of such pedagogical importance as to require special emphasis, because it indicates, more clearly than any other single feature of these films, the place the present experimenters consider motion pictures ought to have in the classroom. In the theater film we have a self-contained and complete unit, having a definite beginning and a still more definite and satisfying ending, which tends to discourage further thought about the matter on the part of the audience. The classroom film with which we are here concerned is not a self-contained unit carrying its own story, which the pupil is to receive passively. Least of all is it a story that has a definite and satisfying end. On the contrary, it is an instrument that the teacher is to use, not a substitute for the teacher, for textbooks, for maps, for drawings, or for other time-honored instrumentalities of the classroom. Far from putting an end to the interest of the pupil, it is designed to provoke questions rather than answer them and is intended to leave the pupil at the end of the film with so many insistent questions in his mind and with so much concrete and detailed content that the end of the picture will be, in effect, the beginning of increasingly satisfying effort on his part to interpret his own experiences and answer his own questions.

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Third Dimension in Colored "Talkies"?

(*Continued from August issue*)

GREAT as have been the advances in motion pictures, "talkies", and color pictures, there have adhered to them all certain defects which Mr. Hartley promises to correct at once. In the first place, he offers to produce pictures in true colors, without the use of colors; he promises to produce the third dimension on the screen, also in colors; he promises to correct the angular distortions on the screen growing out of the fact that all parts of the screen are not the same distance from the projector; he promises correction of the light-and-dark areas on the screen, and offers to give proper transmission of sound with the colored pictures. So simple are the processes, he says, that his colored talking films can be produced as cheaply as the ordinary black-and-white "talkies". The extra cost incidental to the projection of these pictures will be in the installation of a new type of screen.

To begin where the picture begins, a word about the camera may be in order. Mr. Hartley will use the ordinary camera. He will make pictures in the ordinary way, with a single exception. Affixed in front of the lens there will be a revolving filter of light. As it revolves, it will carry a series of colored glass segments in front of the lens in such a way that they build the true color-waves into the negative. If the basic colors of blue, yellow, and red are used, they cover the whole range of the spectrum, for they are the base for all the colors in the rainbow and help to register the image in the true light. Yet the negative gets no visible colors; it gets the imprint of the various wave-lengths that represent the colors and the tints of the object photographed, and it transmits these color wave-lengths to the print, or positive, taken from it. On the same film there is registered also the sound of the object photographed, in the same way that sound is registered on the ordinary film for the black-and-white moving picture. And the sound will be as perfect as the colors, according to the inventor.

Thrown upon the ordinary white screen, the picture in this film would not register, for the reason that that kind of screen lacks the properties of proper absorption and reflection. Hence Mr. Hartley has invented a new type of screen to be operated in conjunction with his pictures. He felt certain of the scientific accuracy of his photographic process—that he had registered the colors correctly—and the next problem was to find the medium upon which the picture could be shown. For this purpose the white screen was useless.

A key to the next step was sought in the known fact that each color has its own wave-length, or light-wave. This suggested the possibility that a screen might be so constructed that it would select and arrange the picture-waves, as they were shot out by the projector, after the fashion of the radio set which selects from the air the waves to which it is attuned and reassembles them into coherent speech. The same process of selectivity takes place over the "carrier current" system of telephony, in which several conversations may be carried on at the same time over a single wire, and there is no confusion because each receiving station picks up the message for which it is adjusted and lets all others go by undisturbed. What Mr. Hartley wanted was a screen that would be in full sympathetic accord with the film, so as to translate it accurately. No screen of a single color could do it. The whole spectrum was needed on the screen as well as in the camera if the former was to reflect what the latter had "caught"; so the screen would have to be a composite of the three primary colors—red, yellow, and blue.

Such a screen Mr. Hartley has obtained by the use of four screens instead of one. They are of metal and are perforated. The first screen has large perforations, like a coarse mosquito netting, so as to let through about seventy-five per cent. of the light from the projector. The second screen, perhaps an inch back, has a smaller mesh than the first and intercepts some of the light; the third screen has still smaller mesh and intercepts its share of the light. Immediately back of the three there is a fourth screen of yet smaller mesh. About eighty-eight per cent. of the light-waves from the projector are absorbed and reflected by this quadruple screen, the remaining twelve per cent. being lost in the rear of the stage.

Were they all of the same color the four screens would not reproduce the picture; but they are painted the three primary colors to correspond to the arrangement of the primary colors in the filter used in the camera. One of the screens is blue, the next is yellow, and the third is red; and as they all are transparent, by virtue of being perforated, they present a field of composite colors. The fourth screen, in the rear, is painted an azure blue, to introduce the element of daylight, or sky. Thus arranged, the quadruple screen is ready to receive the picture. It is capable of recording all the colors and tints of nature. The blue will pick up the blue rays from the projector, the red will take the red waves and the yellow will find its own as the picture comes, and they will reflect these colors and shades as accurately as the camera picked them up through the filter. The sky-blue screen in the rear will soften the tone with its influence, as it shines through the holes in the other screens.

"All artificial light has a yellow tinge," said Mr. Hartley, "and it is one of the unfortunate peculiarities that we cannot produce artificial light to contain the quality of daylight. Such artificial light is deficient in the blue rays, allowing the yellow rays to predominate, giving a yellow hue to everything. One of the most important features of my invention is the neutralising of the yellow tinge, which is accomplished by coloring the white areas of the fourth screen a pale sky-blue. Thus, when the yellow-tinged light from the projector is thrown onto the screen, the sky-blue of the screen provides the blue-ray deficiency, with the result that all the light-areas of the picture appear in a soft natural light, equivalent to daylight. Thus, the familiar white or silver screen gives place to one with a pale blue-sky background."

On this set of screens, the figures will stand out in bold relief. They will have depth as well as height and width, for there is depth to the quadruple screen,

and the production of the third dimension is thus at last accomplished. There is room for shades and shadows. The desired light-and-dark areas in the field are properly reproduced, because the screen itself responds to those impressions.

Another problem that solves itself, if this invention stands the rigid test of the picture producer and comes through as announced, is that of colored "talkies". It will be just as easy, and just as cheap, to make the colored movies talk as to endow the black-and-white pictures with such proclivities; for the sounds can be registered on the margin of the film, as they are now, and there will be no subsequent treatment to disturb the sound-waves. If colors are to be applied to the film by any subsequent known process, it affects the sound-waves on the margin; but with Mr. Hartley's method, the colors record their wave-lengths on the negative, through the Hartley color-filter in the camera, and neither the negative nor the positive requires any additional treatment. The negative will carry from the first exposure the image, the colors, and the speech in such form that they all can be reproduced on the new type of screen.

Instead of setting up an impediment against sound-transmission, as the white curtain does, this quadruple metal screen is expected to facilitate the speech and the music in the "talkies". It will have the metallic ring and will amplify the voice as it passes from the smaller, to the larger perforations in the screens.

Watson Hartley, the inventor, lives at the Hotel Touraine, Boston. He travels frequently between this country and England, which is his native home, and he has patented his new devices in England—BERNARD PETERSON, in *The Boston Evening Transcript.*

Syracuse University to Teach Aërial Photography

THROUGH an appropriation of $30,000 from the Daniel Guggenheim Fund for the Promotion of Aëronautics, Syracuse University has been able to add to its courses in surveying a course in aërial photographic survey. The grant will provide the laboratories and equipment necessary for conducting the course.

The program calls for eight courses covering not only the technique of aërial photography and map-making, but the economic and business phases of aërial mapping the well. A general course in aërial surveying is to be required of all civil engineering students; the advanced courses are for those who desire to specialise in aërial map-making.

An advisory committee of men familiar with aërial survey from the standpoint of technical methods as well as business has been appointed to assist the faculty in the proper organisation of the courses. It is hoped that all necessary arrangements will be perfected in time to permit at least some of the courses to be given during the fall semester of this year.

The Guggenheim Fund, since its foundation in 1926, has aided a number of universities to establish and maintain courses in aëronautics; this, however, is the first grant for aërial photography, and the courses will represent the first college courses in the subject in any American university.

Development of Cancer Cells Photographed

IT is only within the last few years that motion-picture photomicrography has reached the stage where it possesses decided practical value to workers in bacteriology, pathology, and the biological sciences generally. The earlier workers were handicapped by the lack of the proper equipment and were forced to design and construct their own equipment. This drawback has now been overcome and there are available commercially a number of apparatuses for motion-picture photomicrography. With the appearance of complete apparatus on the open market, interest in the subject has spread rapidly and a survey of the research laboratories and universities would show a surprisingly large number equipped for Kinéphotomicrography.

According to *Hygeia*, Dr. R. G. Canti, a London physician, has recently succeeded in photographing the growth of cancer cells. The exposures were made at intervals of from three to sixty seconds; so that when the film is projected at the normal speed, the rate of growth is greatly accelerated and phases which take place so slowly that the details of development are obscured can be speeded up and the progressive changes can be observed. The cells of cancer behave very differently from other cells, and it is hoped that, by means of motion-pictures, the peculiarities of their growth may be partially explained.

London "Daily Express" Installs Picture Transmission

THE Bell System method of picture transmission over telephone lines has now been put into commercial operation in England. The picture-transmission equipment installed by the British branch of the Western Electric Company uses the lines of the British Post Office between Glasgow, Manchester, and London, and has been installed for the publishers of the *Daily Express*. This is a London newspaper with special editions at Glasgow and Manchester. Most of the editorial work, the special features, and advertising layout is done at the London office, and the copy is transmitted to Manchester and Glasgow by telegraph.

The use of the Bell System of picture transmission will enable newspictures to be transmitted at the same time that the copy is being sent; so that the Manchester and Glasgow editions may be made exact duplicates of the London edition. Heretofore the pictures have appeared in later editions owing to delays in transmission. (*Bell Record.*)

Dartmouth Produces

PLANS for the extensive use of amateur movies have been made by Dartmouth College. Two newsreleases, each running 400 feet, fifteen-millimeter, entitled *Dartmouth College News*, filmed by Sidney C. Hayward, assistant to the president, and Charles G. Engstrom, have been circulated among the various alumni groups of the country. The newsreels are released periodically, and a regular film service has been built up for subscribing graduate associations. The first issue of *Dartmouth College News* featured shots of President Ernest M. Hopkins, close-ups of the season's football games, the dedication of new college buildings, hockey, ski, and snowshoe races.

Assisted by the Dartmouth Players, the college dramatic society, the amateur group plans to produce a scenario film, enacted by students, which will depict a year's activities in the life of an undergraduate at Dartmouth. Upon the basis of this experience, an undergraduate unit will be formed for the regular production of amateur photoplays.

Movie-Makers' Magazine.

The Dear Departed

OLD LADY (speaking of her late husband): "I mind the last time we was out together, and he turned around and sez, so kindlike: 'Come along, old draggletail', he sez".

Contact.

LONDON LETTER

CARINE AND WILL CADBY

Our two most popular photographers just now are Edgar and Winifred Ward. Their work is always signed in these joint names and has been appearing in our press for some years. This month they have an exhibition at the Camera Club in London which is well worth seeing. It is called "Beautiful Britain" and ranges from hills and mountains, wide stretches of meadows, woods, castles, cathedrals, down to a Nottingham slum, and all have just that pictorial value that changes a photograph into a picture.

Either Edgar or Winifred has the gift of selection and understands how to seize a feature and build up a composition around it. One would like to know which of these gifted artists has the seeing eye; for we cannot believe that any couple, however complete their harmony, could always see so exactly eye to eye as to choose the same point of view for the camera! We advise the "Come to Britain" movement to buy the whole of this representative show and send it abroad; for it demonstrates that our England is really, in its own particular way, a beautiful country, and that it possesses charms and characteristics which will be found nowhere else.

But this "Come to Britain" movement seems to us foredoomed to failure. Even were our country a paradise, it is no good persuading folk to come while there is such poor accommodation for them. Our press is complaining that two-thirds of the American tourist traffic is now disembarking at French ports to travel in Europe instead of coming straight to Liverpool, as in former days, and spending the first part of their time seeing England. We who know the comfort, efficiency, and inexpensiveness of the continental hotels do not blame them. English hotels lag far behind. Be they big or little, one seldom gets value for one's money.

The inadequateness of English hotels generally—of course there are many exceptions—comes, we believe, from the fact that the majority of proprietors are amateurs. In Switzerland the "hotelier" serves a long apprenticeship and has to pass examinations; whereas here anyone, from a retired army officer to a discharged cook, is supposed to be equal to catering for the travelers' needs. The consequence is that one encounters an immense variety of accommodation and service, and if a holiday mood is on us we take the ups and downs of the road as part of the day's fun. It is a common sight on every route to see numerous motorists encamped lunching, tea-ing, and even supper-ing "on their own", not because they love picnics, but owing to the unsatisfactory state of the inns—those delightful-looking, rose-embowered hostelries, often centuries old, that they have too often found to be but whitened sepulchers!

And so we think the "Come to Britain" movement should concentrate on the improvement of English country and county hotels; and, if they could cultivate a less egotistical and sometimes grasping spirit in the cook and colonel proprietors, it would do more good for the cause they have at heart than any amount of foreign propaganda.

An interesting spot-light has been thrown on the progress of pictorial photography by Mr. Burdus Redford, the Honorary Secretary of the Northern Counties Photographic Convention Special Committee, who, daring much, has, David-like, slung some telling pebbles at the detractors of photography in what we generally consider their great stronghold, the *Times*. We can hardly do better than quote one of his spirited paragraphs that ten years back would hardly have obtained a hearing in our august and sedate daily, which, nevertheless, is always ready to reflect and chronicle recognised advances of all descriptions.

He writes: "The camera is certainly a larger tool than the camel's-hair brush. The ultimate product of either depends on the skill and imagination behind it. 'The eye saw what the camera saw' cannot be said of the work of leading photographers. They get what the camera saw at the same time as they secure the essential spirit of a scene. It is not too much to say that in some subjects this spirit can be captured by photography better than by any other medium. The picture pages of the daily press bear this out as they mirror the flux of daily life, and are constantly improving their standard in doing it. The reproductions in *The Times* are specially noteworthy, in particular when the luxury of ignoring news interest is indulged and some aspect of nature and beauty has been delightfully caught. Even when news must prevail, the press photographer now, as a matter of course, lays balance, design, and even tone so well under contribution that your illustrations fruitfully reward study from the point of composition alone."

We believe that every word of this is true, and it is satisfactory to think that the energy at one time spent on wrangling over the absurd question of whether photography is a fine art is now devoted to organising exhibitions of pictorial photography wherever facilities are available. Provincial art galleries have welcomed shows of merit, and the interest and large attendance of the public prove their need. Mr. Redford believes that metropolitan galleries may soon follow—they will be forced to by public opinion—and may even in time form permanent collections.

The Newcastle Industrial Exhibition which is being held to assist trade revival in that badly hit area has offered to house an exhibition of pictorial photography organised by the Northern Counties Photographic Federation, a room in the Palace of Arts being reserved for it. The promoters' aim is to get together a collection from the whole Empire equal to any which has been seen here before. No profit will be made, for it is launched to provide an added attraction to the North-East Coast Exhibition, and also to show that photography is equal to any artistic demands put upon it.

[As we were making up this page, our thoughts traveled back to December, 1916, when for the first time we made up this page and learned something about who Carine and Will Cadby really were in the photographic world. Since that day we have grown to feel that the Cadbys are members of our very own family and we hold them in high esteem. Their monthly personal and public letter is always anticipated. If the Cadbys ever come to the United States they will soon learn how warm a place they have made for themselves in the heart of the Editor and the readers of Photo-Era Magazine.—Editor.]

HERE, THERE AND EVERYWHERE

To ensure publication, announcements and reports should be sent in not later than the 5th of the preceding month.

Your Patience Will Be Appreciated

For some reason or other it seems as though the moment the Editor gives any indication that he is to be away from his desk for a week or two, that is the time for many readers to write in asking for detailed information with regard to this or that photographic problem. When we returned from our military duty we found a large number of such communications, which require considerable time and research to answer. We have striven honestly to catch up with the accumulated correspondence, but it has been, and is, quite a task to perform and at the same time carry on the routine work of the editorial and business office. However, we are making headway and hope to answer all our correspondents before this issue has been long in the mails. We shall appreciate the patience of those who are still waiting for a reply. It will be sent just as quickly as possible.

The Scottish Photographic Federation

The 22d Scottish National Salon will be held in the Galleries of the People's Palace Museum, Glasgow (kindly granted by the Corporation of the City of Glasgow), from December 21, 1929, to January 25, 1930.

Sections: I—Pictorial; II—Pictorial (International); III—Scientific; IV—Lantern Slides; V—Stereoscopic Transparencies.

Sections I, III, IV, and V are open to all photographers resident in Scotland and Scotsmen resident in other countries.

Section II is open to all photographers, except those eligible for Sections I, III, IV, and V.

Board of Selection: Charles A. Allen, A.R.P.S.; Bertram Cox, F.R.P.S., and John M. Whitehead. Entries close November 25, 1929. Exhibits are due December 2, 1929.

Prospectus and entry-form will be ready shortly and may be had from Robert Marshall, Hon. Salon Secretary, 69 Edington Street, Glasgow, C. 4, Scotland.

American Society of Cinematographers Honors Albert S. Howell

"In recognition of your great contribution to the advancement, perfection, and standardisation of cinematography, the American Society of Cinematographers has unanimously elected you to an honorary membership in its organisation."

The above extract from a letter received recently by Albert S. Howell, of Chicago, from the American Society of Cinematographers, Hollywood, is proof of the esteem in which this inventor and pioneer in motion-picture mechanical developments is held by the leading cameramen of the motion-picture industry.

Born of humble parentage, Albert Summers Howell started life as many other American farmers' sons do. When the Howell family abandoned the fields of Indiana for Chicago, the then fifteen-year-old boy was enabled to devote his time and energies to his calling for mechanical sciences and practice. Working during the day in a factory and devoting his nights to study, he soon developed his latent faculties and his native inventive ability.

His association with Mr. Don Bell in the designing of a motion-picture projector brought about the foundation, in 1906, of the Bell & Howell Company of Chicago.

The thoroughness with which Mr. Howell solved the problems inherent in the designing and construction of motion-picture cameras, film-perforators, and printers was the cause of the adoption of the standards now internationally used by the motion-picture industry all over the world.

In extending honorary life membership to Mr. Howell, along with Mr. Thomas A. Edison and Mr. George Eastman, the American Society of Cinematographers, in its position as the outstanding technical body of its kind, recognises the debt of gratitude that the motion-picture industry owes to Mr. Howell's brilliant mind and unassuming personality.

"Milwaukee Journal" Conducts Photo-Contest

As part of its program to sustain reader-interest during the summer, to build up good will for the paper, and to supply occasional material for the Sunday rotogravure section, *The Milwaukee Journal* in March inaugurated a thirty-week Amateur Photographers' Contest. The enthusiasm with which amateur photographers throughout Wisconsin and near-by States have responded to the idea proves that camera-shooting is a great deal more than an obsolescent fad.

The prize money, totalling $1,000, is divided into weekly awards of one five-dollar, two two-and-a-half-dollar, and eight one-dollar prizes. In addition, two dollars is paid for every submitted print which is found suitable for reproduction in the *Journal* rotogravure section.

All tastes find a pictorial outlet in the variety of subjects announced. Starting with "Street-Scenes", the first week, March 31 to April 6, the weekly subjects run the gamut of human interest, including "Children's Portraits", "Pets", "Character Studies", "Adult Story-Telling Pictures", "Bridges", "Birds", "Picnics", "Water Sports", "Landscapes", "Unusual Photographs (Lightning, Storms, etc.)", "Still-Life Studies", "Interiors of Homes", and seventeen others.

A feature which particularly stimulates sustained interest in the running competition is the provision by which one person may enter as many of the weekly contests as he wishes. Several amateur photographers have won prizes week after week.

The necessary restrictions, such as a deadline for each week's entries, the written consent of any persons distinguishable in the prints, and the limitation of entrants to amateurs only, were reduced to the simplest minimum.

Photographers and photo-finishers have found that the contest ties up admirably with their own sales-promotion. Folders to be slipped into envelopes with developed prints, and drugstore window-displays, are supplied by *The Journal*. Just before the beginning of the contest, *Journal* promotion-men spoke on the plans before the Photo-Finishers Convention which was then meeting in Milwaukee.

Besides selling the Sunday paper to those who watch for the names of winners and for the pictures of the winning prints, the contest increases circulation in the daily *Journal*, where announcements of the progress of the contest appear from day to day.

The success reported at the half-way mark of the contest augurs well for the continued enthusiastic response of amateur photographers during the remaining three months.

"The Lure of Home Movies"

JUST as the August issue went to press, we received two very attractive booklets from the Eastman Kodak Company which we could not mention in that number, much as we wished to do so. Our readers, who are amateur kinematographers, and those who are not, will find in these two booklets the answer to many questions. One booklet is printed in colors and describes the complete line of Ciné-Kodaks, Kodacolor equipment, and projectors, together with the many practical accessories which add so much to the pleasure of making amateur movies. The other booklet is done in the rotogravure process and features the importance of amateur movies in the home, at college, as a record of travel, and in many other activities, of which a permanent record in motion becomes invaluable as the years roll on. Furthermore, reference is made to the finishing-service and to the many splendid professional releases which may be obtained for home-showing. Altogether, we find much of immediate interest and value in these two new booklets, and we urge our readers to obtain copies from their dealer or direct from the Eastman Kodak Company, Rochester, N.Y.

Third International Christmas Salon

WE are glad to call attention to the Third Christmas Salon of Photography, which will be held December 22, 1929, to January 5, 1930, Antwerp-Borgerhout, Belgium. Prints must be sent before November 15, 1929. We have a few entry-forms on hand which we shall be glad to send to those interested.

Bell & Howell Dedicate $500,000 Engineering Laboratory to Future of Movies

BELL & HOWELL COMPANY, Chicago, for twenty-two years the leading designers and manufacturers of the world's motion-picture equipment, have just dedicated their new half-million-dollar engineering development building at Belle Plaine and Rockwell Streets. Within its walls have been assembled the mechanical equipment and a technical staff whose purpose is to guarantee to the art and the science and the mechanics of motion-pictures a future of unparalleled achievement. The entire motion-picture industry has been informed of the purpose of the enterprise and has been invited to assign to the laboratory any phase of mechanical technique on which it may require experiment and information.

Bell & Howell's regular engineering laboratories in its production building at Ravenswood and Larchmont Avenues long ago outgrew their quarters there. In contemplating a new building to house the department, Bell & Howell took a step beyond their original purpose and built a building large enough to take care of the engineering needs of the whole industry. The new building contains 35,000 square feet of floor space. It is equipped with precision machinery and apparatus for every kind of mechanical test and for the development of models. It will have a capacity of four hundred engineers and technicians.

Several projects of the utmost importance to the future of the movie industry have been under way in the Bell & Howell laboratories for some time, under the direction of Mr. A. S. Howell, chief engineer. Work is constantly going forward on all phases of the "talkies" and "three-dimensional" movies.

The professional 35-millimeter camera has undergone the greatest change of any single piece of equipment under development at the Bell & Howell laboratories. With the advent of the talkies, the department's attention was concentrated on making the camera absolutely soundless in operation, without impairing its mobility. The result is that "talkies" may now be filmed without the use of sound-proof booths. In many cases, the new sound-cameras operate, unheard, only ten feet away from the microphone. This new development was a stride ahead in "talkies" almost as great as "talkies" were a stride ahead of the "silent drama".

Amateur movie cameras as well as professional come in for their share of experiment and development. The most recent development of the laboratories in the 16-millimeter field is a new camera with seven film speeds, an integral three-lens turret head, and a variable spy-glass viewfinder. The flexibility of the new camera places in the hand of the amateur movie maker an expertness approaching that of the Hollywood cameraman.

Lios Exposure-Meters Arrive by Zeppelin

The *Graf Zeppelin* brings a rush shipment of the popular Lios One-Movement Exposure Meters, we are informed by the United States agent, Burleigh Brooks, 156 Liberty Street, New York City.

Each meter in the shipment aboard the huge airship is handsomely engraved: "Shipped by *Graf Zeppelin*, Friedrichshafen–Lakehurst." In this manner it represents a wonderful souvenir of this occasion in the photographic trade.

Mr. Brooks informs us, however, that at the time of writing, which was three days after the arrival of the ship, the parcels had not yet been cleared through the Customs, and it appeared at that time that it would take several days more. Considering such a delay and the expense of this method of shipping, it might seem unwarranted, but the interest created by this novel, new mode of transportation and the inscription which the meters bear are sufficient compensation, nevertheless. Besides, it is to be hoped that the service of clearing such shipments will be improved in future experiences.

P. A. of A. Members Now Control Association

THOSE business associations which are controlled by their members are the most successful. This fact has been brought out in conferences of the Chamber of Commerce of the United States and in other ways. When members participate in the management of an association, their interest is maintained, and the group judgment of a large number of men and women engaged in one occupation or profession is sound. Members of the Photographers' Association of America have been put in control of the organisation by the adopting of the new constitution now in effect.

This constitution gives representation to every club or other affiliated organisation in the national council, the law-making body of the national association.

The affiliated organisations are now sending in requests for charters, which the general secretary is authorised to issue to them, entitling them to elect and send delegates to the council.

The place for the meeting of the council will soon be

decided. The constitution fixes the time in October. This will be the first meeting where delegates from all parts of the United States and Canada will formulate the policies for the association.

This plan gives the association a parliamentary form of government, in reality making it a business republic in which the individual members have voting power.

Policies and questions relating to the photographic business will come up for discussion and determination at the October meeting.

Already some of the clubs are beginning to discuss the problems and plan their course of action, and some delegates have already been elected.

The new constitution is thus meeting with approval.

Kotava Positive Film

KOTAVA Positive Film, recently produced by the Eastman Kodak Company, Rochester, New York, is a distinctly new printing material which offers wonderful possibilities for producing high-grade portraits. It is a positive emulsion coated on a heavy, ivory-white film-base which lies flat.

Kotava positives have a smooth, fine-grained surface and will reproduce all of the quality of your finest negatives. The black-and-white or sepia prints, produced by redevelopment, have all of the effect of rich carbon prints and will command an excellent price. And this, photographers who have seen Kotava tell us, is what they have long wanted. Kotava prints are obviously of high quality and cannot be made too cheaply.

In addition to the possible sales of black-and-white or sepia prints, Kotava is the ideal material for oil-colored prints or miniatures, for which the demand is constantly growing. Colorists who have tried Kotava pronounce it the finest material ever used for this purpose. Oil-colors may be applied without any preparation of the film, and anyone may obtain fine results with but little experience.

If you have ever made colored miniatures on glass, you know the difficulty of cutting the glass to fit a small frame. Kotava may be cut with a pair of shears, is as lasting as glass, and is unbreakable.

Kotava Positive Film may be handled under a Series I Wratten Safelight and may be used either for contact or projection printing. If reductions are to be made, the light must be materially cut down because of the speed of the Kotava emulsion. Complete processing instructions are supplied with each package of film.

Arthur Hammond at Wolfeboro

THIS summer, photographic editors and writers, not to mention many well-known pictorial photographers, *en route* to or from the White Mountain region of New Hampshire, have visited Wolfeboro and have called at the editorial office or at the home of the Editor. More have come than during any previous summer-season. It has been a very real pleasure to welcome so many and to profit by the many constructive and interesting chats with our friends. Our readers are familiar with the name of Arthur Hammond, whose book on pictorial composition has helped so many to make better pictures. He dropped in to see us, and we learned that he was spending the summer across Lake Winnepesaukee at a large camp for boys, where he is one of the instructors and the official photographer. For a time, a few years ago, he was Associate Editor of *American Photography*, and his articles in that publication were widely read. Mr. Hammond likes portraiture, especially of boys, and many of his pictures have appeared in photographic publications and exhibitions.

The Small Camera Comes Through

A NUMBER of years ago our idea of a press photographer was a man with a 4 x 5 or a 5 x 7 reflecting camera, with a great hood on it into which he peered continuously, and who rushed from one position to another while a crowd of youngsters and curious grown-ups followed him about. A few weeks ago we met a representative of Underwood & Underwood of New York. The occasion was the final review of the boys at the Citizens' Military Training Camp at Fort McKinley, Portland, Me. The Secretary of War and Major General Preston Brown, First Corps Area Commander, were to review the parade. We had our 3¼ x 4¼ Graflex. The Underwood man had a 2¼ x 3¼ rollfilm Ica! From past experience we looked at his little equipment with respect; but we wondered how such an outfit met the needs of an Underwood & Underwood press-photographer. After the review we found out, and we admit frankly that we liked the pictures he made of the review and the notables present far better than our own. Why? Because the Underwood man moved about without attracting attention; his lens on the smaller picture-size gave him greater depth of focus, and the 1/300 shutter-speed on the little Ica was ample even for airplanes in flight. Altogether, with the exception of being able to see the image right side up before exposure, he had a distinct advantage in portability and cost of upkeep. He did not look so professional nor meet so entirely the public's conception of a news-photographer; but he was certainly getting pictures which Underwood & Underwood were releasing all over the world. The day of the small, high-grade camera is here for those who know how to use it. After all, is not the movie negative diminutive in size? Yet behold to what tremendous size it is enlarged! Why should not a 2¼ x 3¼ negative yield brilliant and sharp enlargements for the press? It is another case of leaving off the old and putting on the new, no matter how it may jar our long-established conventional ideas of a press-photographer. Is it not about time for the amateur and the professional photographer to stand on his own photographic feet and dare to use the equipment with which *he* can get results?

Results of Eastman Photo-Contest

IF Rosemary Martin's chubby knees had been quite straight, or if she had been much more than four years old, or if her parents had broken her of that habit of biting her thumb in moments of shyness, her father—Lawrence L. Martin of New Orleans—would be $2,500 poorer.

As it is, those qualities, plus her tousled hair and the fit of her scant undergarments, combined in such a charming effect that her picture was awarded the grand prize of $2,500 in the nation-wide amateur photography contest recently concluded under the auspices of the Eastman Kodak Company. To win the prize it had to compete with three-quarters of a million photographs submitted by amateur photographers throughout the United States and Canada.

The group of judges which selected this little girl's picture as the best of the contest was composed of Ethel Barrymore, the actress; Howard Chandler Christy, the artist; Clare Briggs, the cartoonist; Rudolf Eickemeyer, a medalist of the British Royal Photographic Society; Kenneth Wilson Williams, Editor of *Kodakery;* and Hector Charlesworth, editor of *Toronto Saturday Night.* This board of judges sat in New York recently after the tremendous job of sorting and preliminary selection of the contest entries had been accomplished by a large corps of contest workers.

Prior to the selection of the grand prize-winner, first, second, and third prize-winners and many smaller prize-winners were picked from each of eleven classifications: scenic photographs, sport photographs, informal portraits, story-telling pictures, nature-study pictures, architectural studies, animal pictures, unusual pictures, interior pictures, still-life pictures, and enlargements.

The winners of $500 first prizes in the eleven classifications were: Mrs. Milton Anderson of Huntsville, Ala.; Toshio Asaeda of New York; Barton Bachmann of Redlands, Calif.; Mrs. L. N. Lindsey of Forsyth, Ill.; M. E. Nims, of Beloit, Wis.; George N. Ottinger of Salt Lake City, Utah; Dr. J. B. Pardoe of Bound Brook, N.J.; Mrs. Theresa H. Reichel of Oakland, Calif.; W. A. Ridgeway of Washington, D.C.; A. M. Vail of Harvey Station, New Brunswick, Canada; and Miss Mary E. Wild, District of Columbia.

State winners in another classification, child photographs, had already been picked at the end of March and again at the end of April, the first two months of the contest. The picture of Rosemary Martin, which won the grand prize for the best in any classification, had previously been selected the Louisiana State winner in one of the two child photograph groupings of the contest.

The pictures with which Rosemary's competed began being made and sent in to the offices of the Eastman Kodak Company at Rochester, N.Y., the first of March, when the announcement was made that $30,000 in prizes would be awarded for the best pictures of various kinds. At the end of May the contest closed, with half a million pictures classified and stored away waiting to be judged, and with a quarter-million more photographs from every corner of the Continent north of the Rio Grande lying in mail bags that had arrived in the last three days of the month, waiting to be recorded and sorted.

Winner of $2,500 Dumbfounded

Rosemary Martin's triumph has already been noted, although it should be added that she had to vie with photographs of several other bewitching little girls and with numerous remarkable pictures of other subjects; but Rosemary's charming way of biting her thumb led all the rest.

Her father, a man with three children and not a very big house to keep them in, was dumbfounded when the cheque for $2,500 was put into his hands.

"Wh-wh-what do you mean?" he asked. "Why, that's more money than I ever had at one time before."

He could hardly believe that his picture had won against three-quarters of a million others.

"I sent in Rosemary's picture only by accident", he explained. "I haven't even been an amateur photographer very long. In September, 1928, I bought a camera and began taking pictures of my children, and it has now developed to be my hobby.

"I took the winning picture on a Saturday afternoon in the latter part of March. My wife had made a new dress for Rosemary, and I decided to take her picture in this dress. I set my camera on my back porch, making a background formed by a blanket.

"Rosemary's mother bathed her and put on her undies, and then while she was getting her dress out Rosemary ran out to the porch and stood up against the blanket background. I began to scold her and told her to hurry and let her mother finish dressing her so I could take her picture. While I was scolding her, she stood there in that demure position, and looked so cute that I snapped her picture. This explains the clothes. Frankly, I never dreamed that it would bring me the good fortune it has."

About the Pictures on the Next Page

We wish that time and space permitted us to reproduce all the pictures which received awards in the great Eastman Amateur Photo Contest. However, we have given our readers a glimpse of the winning print of them all and of those which won the $500 awards in their respective classes. Our sympathies and congratulations are extended to the judges for the great task well done.

The board of judges which selected the winning pictures was composed of Ethel Barrymore, the actress; Howard Chandler Christy, the artist; Clare Briggs, the cartoonist; Rudolf Eickemeyer, medalist of the British Photographic Society; Kenneth Wilson Williams, editor of *Kodakery;* and Hector Charlesworth, editor of *Toronto Saturday Night.*

The winter-scene, by A. M. Vail of Harvey Station, York County, New Brunswick, won first prize ($500) in the scenic picture classification.

The picture of Washington Monument, by Miss Mary E. Wild of 1436 Ogden Street, Washington, D.C., won first prize ($500) in the architectural subjects classification.

The photograph of the garden implements, by Barton Bachmann of 619 Eleventh Street, Redlands, Calif., won first prize ($500) in the still-life pictures classification.

The photograph of the cat, by M. E. Nims of 1304 Prairie Street, Beloit, Wis., won first prize ($500) in the animal-pictures classification.

The photograph at the center top, by Mrs. Milton Anderson of Newman Avenue, Huntsville, Ala., won first prize ($500) in the story-telling classification.

The photograph of Rosemary Martin of New Orleans, by her father, Lawrence L. Martin, won the $2,500 grand prize in the amateur photography prize contest, in competition with hundreds of thousands of other pictures from all parts of the United States and Canada.

The photograph of the swans, by Toshio Asaeda of 417 West 145th Street, New York City, won first prize ($500) in the nature-study classification.

The photograph of the motor-cycle race, by Mrs. L. N. Lindsey of Forsyth, Ill., won first prize ($500) in the sport-picture classification.

The photograph of the little girl, by Mrs. Theresa H. Reichel of 1811 East 20th Street, Oaklands, Calif., won first prize ($500) in the informal portrait classification.

The photograph of the Capitol, by W. A. Ridgeway of 1122 Tenth Street, N.W., Washington, D.C., won first prize ($500) in the unusual photographs classification.

The photograph of man and boy, below the one of the Capitol, made by Dr. J. B. Pardoe of Bound Brook, N.J., won first prize ($500) in the enlargement classification.

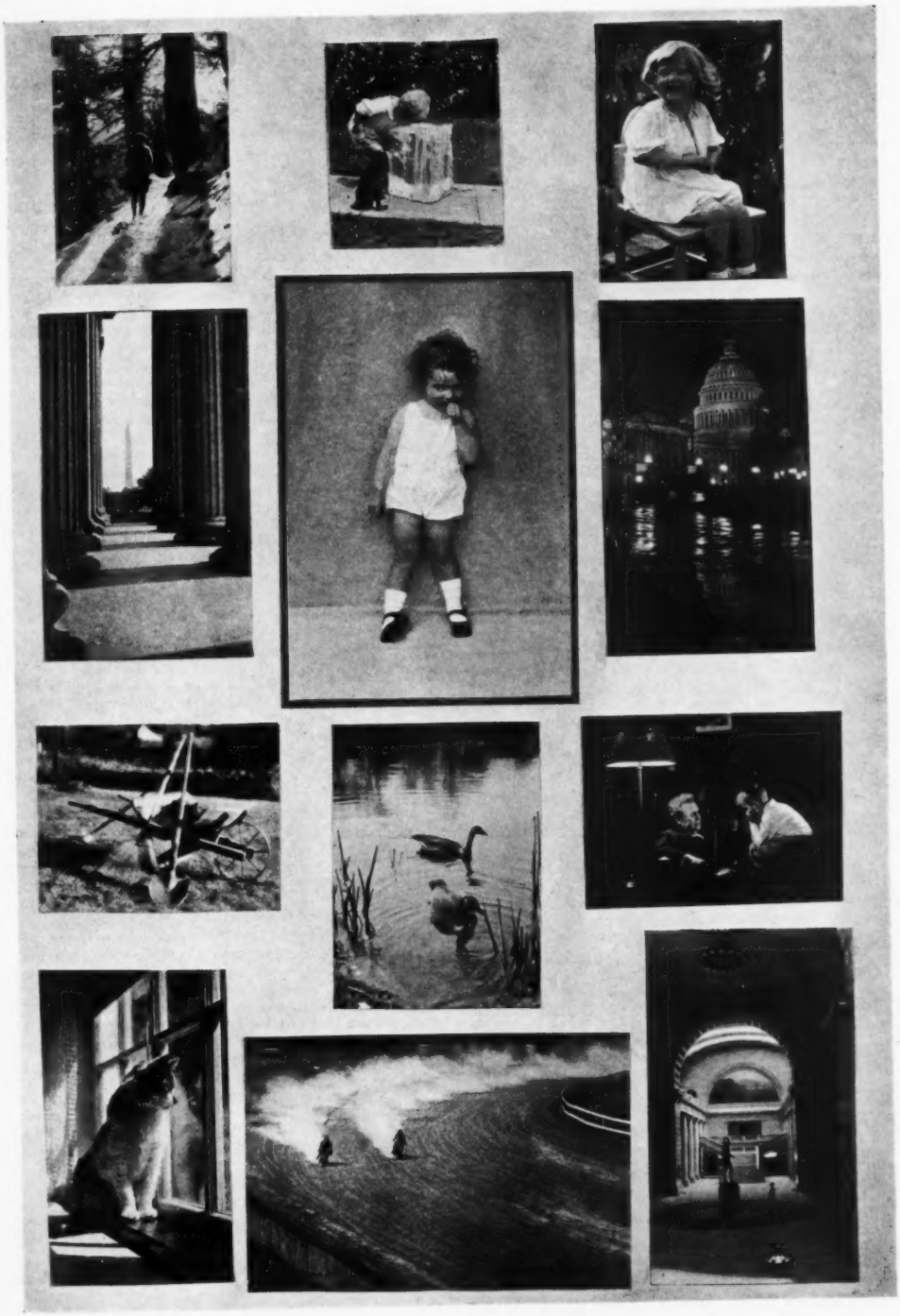
The photograph in the lower right corner, by George B. Ottinger of 222 I Street, Salt Lake City, Utah, won first prize ($500) in the interior photography classification.

Angelic Attributes

A man who surprised his wife by calling her an angel was asked to explain his unusual compliment.

"Well, Mary," he said, "in the first place, you are always flitting about; secondly, you are continually harping on things; thirdly, by your own account, you have nothing to wear; and fourthly, you are up in the air most of the time."

Contact.



PRIZE-WINNING PICTURES—EASTMAN AMATEUR PHOTO-CONTEST

THE AMATEUR KINEMATOGRAPHER

HERBERT C. McKAY, F.R.P.S.

The Motion-Picture—Whither?

We are all familiar with the adjectives ordinarily used in describing the motion-picture. Its rapid growth, its tremendous size and power, the marvels of technique which have been developed are so well known that any mention of them is regarded as being trite. We are just as familiar with the equally rapid rise of the home motion-picture. With every circumstance favoring the continued advance of both branches, the motion-picture has run into the most serious obstacle of its history. This is the "talkie" situation.

The sound-recording which was universally hailed as the most wonderful invention of the age threatens to become a veritable Frankenstein. The motion-picture industry today is seriously wondering if the talking picture is going to sound the death-knell of the motion-picture. It is beyond doubt that the industry cannot continue at the present rate. We have the consolation, if the pictures *do* die, that from the ruins will rise the phœnix of greater and better pictures. The world without motion-pictures is inconceivable.

Briefly, sound drove a certain number of old patrons from the theater. The novelty attracted new ones, and the first few performances played to capacity houses. Then the poor quality of the reproduction drove patrons from the theater again. Such was the cycle of patronage. Financially, the theater was sound-equipped at a cost of roughly twenty thousand dollars, and film rentals were from 300 per cent. to 700 per cent. greater than for silent pictures. This financial burden in many cases proved so heavy that houses have run at a loss ever since sound-installation, without any indication of better conditions for the future.

As a result of these conditions, the theater-owner cannot revert to silent pictures, as he has lost a portion of his habitual patrons who favored the silent film. Moreover, he still has the deficit of the installation and he cannot secure really good silent films. He cannot retain sound, for his patrons are being driven from the theater by poor reproduction, and he cannot pay the prohibitive rentals. If he can make use of neither sound nor silent, what can he do? The answer is obvious and it is corroborated by a professional publication which states that a heavy proportion of theaters outside metropolitan districts face bankruptcy and closure this season!

This is a truly regrettable condition. We need the theater. Personally, the writer does not care greatly for professional sound-films; but already the technique is improving and promises much. At the present time, the sound-films which leave the studio are in many cases really good. However, a review of the foregoing paragraphs will show that the heart of the trouble is *poor reproduction*.

The answer is easy, extraordinarily easy, yet the exhibitor apparently finds it impossible to solve! To demonstrate this, the writer hopes you will pardon a little personal reminiscence.

A theater of the Keith circuit had installed a modern sound-equipment. They sent a bitter complaint to the manufacturer of the equipment. This complaint was answered by a corps of engineers sent to the theater to inspect thoroughly the equipment. The writer was invited to accompany this party. We arrived before the closing reels of the show and the reproduction was terribly incoherent, harsh, and nerve-racking. After the house was emptied, the engineers took over the equipment and in a few minutes one of the reels of the regular program was run. The sound filled the auditorium, round, full, and true, unnatural only in volume. This was a revelation.

The sound is on the film! It is on the record! But so long as the theaters try to operate with incompetent operators in the booth, who style themselves "projectionists", the "talkies" will not gain the fullest of public approval. Sound-reproduction, particularly from film, is so inconceivably delicate that it makes the projection of motion-pictures appear comically crude by comparison. Operators who have no idea of delicate equipment can hardly be expected to secure results from a machine whose counterpart is not to be found outside precision laboratories. True, the component parts of the equipment are beautifully simple; but the adjustment, the relative orientation of the parts and the correlation of their functions, must be *exact* or results will not materialise.

The producer is not at fault. Do not demand better sound of him until the theaters employ projection engineers capable of securing and reproducing the quality now fixed upon the film!

The explanation, however, does not add to the enjoyment of the patron, nor will the excuse add to box-office receipts. The salvation of the motion-picture theater must be worked out by those most vitally interested. Perhaps, when producers learn that the observation of some of the elementary laws of electro-acoustics will eliminate much of the costly and absurd "sound-proofing" now in vogue, when they learn that the familiar Hollywood stars are known throughout the country, while the fame of Broadway stars ends with the pavement of Broadway, when they learn to recognise merit over press-agent reputations, they can reduce costs and the exchange can reduce rentals. With lower rentals and better projection, there is no reason why the sound-film should not take a deservedly high place in motion-picture ranks. It can, and it will provide an incalculable fund of amusement; but it can hardly be expected to become a true art. We can no longer question the potential art of the silent picture, and in that degree the silent film will retain its superiority; but in the fields of amusement and consequent financial success, it will probably have to give way to the perfected sound-film!

But, what has all this to do with the home-film? The interest is one of contrast. There can be no question that, within the next twelve months, sound will be firmly enthroned in the amateur field. Not only this, but it will be accompanied by natural color! This is not prophecy, but a statement based upon present unmistakable indications. Just why will sound and color be more successful in the amateur field than in the professional? There is a paradox involved. The amateur will not, cannot make use of the heavy, complex, costly recording equipment used professionally. Already experiments show that the simplified amateur equipment will not only be small, simple, and light, but it will also give results in many cases

superior to the professional equipment! The writer has made a series of phonograph records in an ordinary room, with an amateur camera unsilenced, and the result was sound-reproduction in every way comparable to that produced by commercial phonograph records of the best quality! A complete record synchronising-equipment can be sold for probably five hundred dollars, and it will give complete satisfaction!

For the sake of argument, let us assume that the quality *is* inferior. This will not interfere in the least with the success of the equipment. Experience has shown that, in his own film, the amateur will exhibit with pride a film so filled with faults, photographically, that he would walk out of any theater which should dare to exhibit it! We cannot condemn this attitude. We admire the work of our own hands, the results of our own efforts. If we make "talkies" which are capable of being understood, will we object to the blast and rattle caused by neighbor Jones starting his flivver in the midst of a tense emotional scene? No! It will probably be quite humorous!

With faults—with many of them—could we fail to value an indestructible record of the voices of our friends and relatives? Could an insignificant scratch induce us to destroy the record of a hilarious beach-party? Hardly! We cannot deny that the era of the sound-film is here and it is here to stay.

There are some, in fact very many, who object to the "talkie" upon æsthetic grounds. These cannot be blamed. Their complaint is fully justified. Heavy melodrama, with scenes where the "papers" are torn to the accompaniment of a sound suggestive of the ripping of a steel sheet by a giant, can hardly fail to bring grins to our faces. Those members of this group who are fair-minded—and this means the majority of them—admit that in the news-field sound is admirable. They admit that *good* sound is an achievement in the small theater where a full orchestra is impossible. The value of sound in record work is undeniable.

The amateur film, the home-film, is the typical record film, and to this extent sound is more logically applicable to the home-film than to the professional; and, as such, sound in the amateur field will win universal popularity far more quickly than in the professional. It is conceivable that the theater will revert, in time, to the silent drama; but the home-film, the family-record film, will be—must inevitably be—a synchronised record!

Film Fairy Tales

Some time ago we reviewed the Ciné-Arts films "The Little Knight" and "The Little Defender". At that time, mention was made of some forthcoming fairy tales. These have now been released and the Ciné-Arts production units certainly deserve the utmost credit for giving us the old familiar fairy tales, screened in a manner which preserves all of the glamour, all of the fantasy of the original tales. The two outstanding releases of the month are "Hansel and Gretel" and "The Hut in the Forest". "Hansel and Gretel" needs no comment, as for fifteen minutes it displays upon the screen the old familiar story, every loved detail present with no improvements or additions. In fact, all of these screen-versions are remarkable for the fidelity with which the story is followed.

"The Hut in the Forest" holds the interest of both children and adults; but the transformation of the hut, the Old Man, his hen, rooster, and cow bring forth "Oh's" and "Ah's" from the juvenile audience, while the palace scenes with the Prince and his followers attending the amazed heroine hold us all.

Other releases include such old favorites as "Clever Gretel", "Clever Elsie", and others.

"Aladdin and His Wonderful Lamp" and "Red Riding Hood" are presented in 400-foot reels. These two stories are in full animation. The fantastic dolls and sets used are fascinating, but they cannot compare in attractiveness to the living actors and real sets used in the "Grimm" series described above. These figures, grotesque in the extreme, with no claim to beauty, stiffly move through their rôles in a manner to excite the risibles of the most dour. Their character is revealed by the audible delight with which they are received by children, as contrasted by the wide-eyed but breathless interest shown in the "Grimm" series. We certainly owe an expression of thanks to the producers of these fine films.

New Arrow Screens

The Arrow Screen Company has announced its new model home-screen, in which the supporting members are concealed behind the fabric of the screen, making a more attractive screen than before. The supporting fabric has been improved and the distinctively high quality Arrow bead surface has been retained.

The Arrow screens are encased in wood cases, beautifully stained and finished. The compact size, light weight, and unusually high-quality beaded reflecting-surface combine to make the Arrow one of the most popular screens now in use.

Cinétone Features

The Q. R. S.-DeVry Corporation announces the release, in the very near future, of an entirely new series of features for the DeVry Cinétone.

The Cinétone has aroused wide interest and, due to the fact that it has positive and exact synchronism, is proving surprisingly popular with amateurs throughout the country. This home-talking device, the first one to appear and the only one with positive synchronism, will be even more popular in the very near future, when the home-recording equipment is made available by using indestructible records. Such equipment has been promised by a manufacturer whose name cannot be given at this time, but the announcements may be expected shortly.

Natural Color—Promise or Threat?

With Kodacolor firmly entrenched and successful beyond all expectations, with Vitacolor making new friends in legions, with at least three unannounced systems of natural-color motion-picture photography imminent, we must squarely face the color-situation.

Do *you* want natural color motion-pictures?

Yes, you do! But you want it good, you want color-films which you can expose in your present camera and which you can project in your present projector. You don't want to use added illumination, you don't want to use attachments or filters—and you can't have it! In fact, you don't deserve it!

Color, good color, is obtainable! You don't expect to make motion-pictures in a Brownie camera, and you should not expect to secure the richness and beauty of natural color without making certain concessions in the direction of added accessories and greater care in exposure.

The color-question cannot be evaded. The problem is not entirely solved; but to those who will secure the few accessories necessary, who will use a little added care in camera-manipulation, a new world, the world of animated color, opens its doors. After a little experience, you will produce films of beauty and charm which will be a revelation to you.

New Viewfinder

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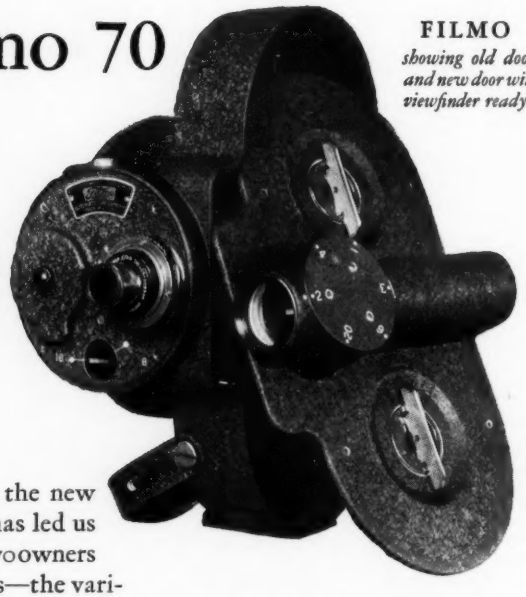

FILMO 70-A
showing old door removed and new door with variable viewfinder ready to attach.

SIX FIELD AREAS ON A SINGLE DIAL

The wide acclaim given to the new 7-speed Filmo 70-D Camera has led us to make available to all Filmo 70 owners one of its outstanding features—the variable spy-glass view-finder. The new viewfinder is an integral part of the camera door and can be attached to any Filmo 70 camera merely by replacing your old door with the new one. Matched viewfinder lens sets for lenses of different foci are thus made unnecessary. Merely turn the knurled dial and the field areas of six different focal length lenses are instantly switched into view.

The new viewfinder incorporates a hollow semi-circular drum with field areas of 20 mm., 1″, 2″, 3″, 4″, and 6″ lenses cut into it. As the dial is rotated, the field areas of the lenses are switched into the viewfinder. The focal lengths corresponding to the field areas in the drum are clearly marked on the knurled dial.

Your present Filmo 70 camera door, with viewfinder eyepiece and objective lens, will be accepted for credit on the cost of the new door. Installations can be quickly made at the Bell & Howell factory. No charge for this operation. Write for literature.

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1929—PRESTON.